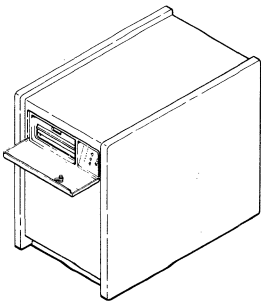


MR6280

SPERRY UNIVAC
UTS 4020
CLUSTER CONTROLLER
TYPE 8601

SERVICING REFERENCE DATA



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AUGUST 1981
CUSTOMER ENGINEERING

SPERRY  UNIVAC

CAUTION

Semiconductors and assemblies which contain them can be damaged by static electricity. Therefore, handle all semiconductors and printed circuit assemblies as if they will be damaged by static electricity. Use cautions and procedures that are in C. E. video training tape T47202.

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HANDBOOK CHANGE BULLETIN

CUSTOMER ENGINEERING

BOOK: MR6280, SPERRY UNIVAC EFFECTIVE DATE: March 25, 1982
UTS 4040 Cluster Controller
Type 8601 Servicing
Reference Data

HANDBOOK APPLICATION

HCB-1

SPERRY UNIVAC
UTS 4000 System

Miscellaneous

DESCRIPTION OF CHANGES

NOTE: Vertical bars in the margins of the attached revised pages indicate where maintenance data has been added, deleted, or revised. A new page that contains new or revised data or a page that was completely rewritten will have a vertical bar adjacent to the page number only. A new page containing no new or revised data will only carry the new revision level at the bottom of the page.

Cover backup page was changed to the new format.

Revision Status page and Table of Contents were changed to reflect the changes in the book.

General

A typing error was corrected on page 2-2.

Figure 2-2. Features and Selections

New memory features (F3462-04, -05, -06) were added.

Figure 2-3. Type 8601 Specifications

Main memory specifications were changed to reflect the new memory features available.

Figure 2-8. PCA Complement and Placement

Two notes were added to the figure to reflect the differences in memory options for the Cluster Controller.

Figure 2-9. System Cabling

The art was changed to reflect the maximum workstations allowed on a line module.

Figure 7-7. Internal Direct Connect Communications Cable Assembly 2818820

The picture of J2 was corrected.

DESCRIPTION OF CHANGES (cont)

Figure 7-14. DCP 20/40 Direct Connect Cable Assembly 2824691
Pin 4 of P1 was changed to Pin 14.

Figure 10-3, 10-4, 10-5. ILD Strapping Information
These figures were added to provide strapping information for
the diskette drive.

Figure A-3. Type 0425 Character Printer Self Test
This figure was added to provide self test information for
the Type 0425 Character Printer.

INSTRUCTIONS

All revised pages are labeled: REVISION: HCB-1

Remove Pages	Insert Pages
Cover	Cover
RS-1	RS-1
v	v
1-3	-
2-1 thru 2-8	2-1 thru 2-8
2-17 thru 2-20	2-17 thru 2-20
7-7, 7-8	7-7, 7-8
7-15, 7-16	7-15, 7-16
10-3	10-3 thru 10-9
-	A-5

INSERT THIS HCB COVER SHEET IN MR6280 IMMEDIATELY FOLLOWING
THE TITLE PAGE.

HANDBOOK APPLICATION

SPERRY UNIVAC UTS 4000 System

Miscellaneous

REVISION STATUS

EFFECTIVE PAGES	REVISION HCB
iii and iv	-
v	1
1-1 and 1-2	-
2-1	-
2-2	1
2-3	-
2-4 and 2-5	1
2-6	-
2-7	1
2-8 thru 2-17	-
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2-19	-
2-20	1
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4-1 thru 4-19	-
5-1 thru 5-3	-
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10-1 thru 10-3	-
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SECTION 1

INTRODUCTION

INTRODUCTION

This manual provides installation check procedures, troubleshooting procedures, and other maintenance information for the SPERRY UNIVAC Universal Terminal System (UTS) 4020 Cluster Controller Type 8601 (cluster controller). This manual supplements the maintenance documentation.

The manual is arranged in sections as follows:

Section 1. INTRODUCTION. This section describes the purpose and organization of the manual.

Section 2. GENERAL INFORMATION. This section contains reference documents, basic specifications, features, PCA placement priority, system cabling, etc.

Section 3. INSTALLATION CHECK PROCEDURES. This section contains a flowchart check procedure to be used by the customer engineer to verify a customer installation.

Section 4. TROUBLESHOOTING AND MAINTENANCE AIDS. This section contains troubleshooting and maintenance information for the cluster controller.

Section 5. ADJUSTMENTS. This section contains adjustment procedure information.

Section 6. POWER INFORMATION. This section contains ac and dc power information including voltage reference points, cabling, and sequencing.

Section 7. CABLE INFORMATION. This section contains internal and external wiring tabulations.

Section 8. CONTROLS AND INDICATORS. This section describes the controls and indicators on the cluster controller.

Section 9. SOFTWARE AND MICROCODE INFORMATION. This section contains reference software and microcode information.

Section 10. STRAPPING. This section contains strapping information for the cluster controller.

Appendix A. PERIPHERAL INFORMATION. This appendix contains related troubleshooting and maintenance information for attached peripherals.

CAUTION

Semiconductors and assemblies which contain them can be damaged by static electricity. Therefore, handle all semiconductors and printed circuit assemblies as if they will be damaged by static electricity. Use cautions and procedures that are in book SP7523 and System Technical bulletin SYS23.

SECTION 2

GENERAL INFORMATION

REFERENCE NUMBER	TITLE
HB2372	SPERRY UNIVAC UTS 4040 CLUSTER CONTROLLER TYPE 8601 SERVICING
HB2368	SPERRY UNIVAC UTS 4000 DISPLAY STATION TYPE 3560 SERVICING
HB2369	SPERRY UNIVAC UTS 4000 DISPLAY STATION TYPE 3561 SERVICING
HB2337	SPERRY UNIVAC MODEL 800 TERMINAL PRINTER TYPE 0774 SERVICING
HB2338	SPERRY UNIVAC DISKETTE SUBSYSTEM TYPE 8406 SERVICING
HB2340	SPERRY UNIVAC PRINTER TYPE 0786 SERVICING
HB2355	SPERRY UNIVAC PRINTER TYPE 0791 SERVICING
HB2374	SPERRY UNIVAC PRINTER TYPE 0797 SERVICING
HB2375	SPERRY UNIVAC PRINTER TYPE 0798 SERVICING
HB1767	SPERRY UNIVAC PRINTER TYPE 0789-00 THRU -14 SERVICING
DR2560	SPERRY UNIVAC UTS 4000 SYSTEM DIAGNOSTIC DESCRIPTION

Figure 2-1. Reference Documents

FEATURE/ SELECTION	NAME	DESCRIPTION
C3381-XX	POWER CABLE	PROVIDES POWER CABLE SELECTION FOR T8601-01
	-00	NEMA 5-15P USA CANADA KOREA JAPAN
	-01	SEV 1011 SWITZERLAND
	-02	IEC 83/C5 AUSTRIA BELGIUM BULGARIA FINLAND FRANCE GERMANY HUNGARY ICELAND INDONESIA IRAN ITALY MALAYSIA NETHERLANDS NORWAY POLAND PORTUGAL ROMANIA SWEDEN YUGOSLAVIA
	-03	BS 1363:1967 UNITED KINGDOM NORTHERN IRELAND HONG KONG SOME OF SOUTHERN IRELAND SOME MIDDLE EAST COUNTRIES

Figure 2-2. Features and Selections (Sheet 1 of 3)

FEATURE/ SELECTION	NAME	DESCRIPTION
C3381 (CONT)	-04	CABLE WITHOUT POWER CONNECTOR EASTERN EUROPEAN COUNTRIES ALGERIA SOUTH AFRICA DENMARK REPUBLIC OF IRELAND MIDDLE EAST SPAIN
	-05	NO CABLE OR CONNECTOR AUSTRALIA NEW ZELAND
F3462-01	RAM 64K BYTES	PROVIDES 64K BYTES OF RANDOM ACCESS MEMORY FOR T8601-XX.
F3462-04	ERROR CORRECTION 256K BYTES	PROVIDES 256K BYTES OF MEMORY AND ERROR CORRECTION FOR ALL MEMORY. APPLIES TO T8601-00, -01, -02, -03.
F3462-05	RAM 128K BYTES	PROVIDES 128K BYTES OF RANDOM ACCESS MEMORY FOR T8601-00, -01, -02, -03.
F3462-06	RAM 256K BYTES	PROVIDES 256K BYTES OF RANDOM ACCESS MEMORY FOR T8601-00, -01, -02, -03.
F3463-XX	8-BIT PERIPHERAL INTERFACE	PROVIDES 8-BIT (PLUS PARITY) INTERFACE FOR T8601-XX.
	-02	SINGLE PERIPHERAL INTERFACE ATTACHING UP TO FOUR DEVICES (MODE 1 OR 2*).
	-03	DUAL PERIPHERAL INTERFACE EACH ATTACHING UP TO FOUR DEVICES (MODE 1 OR 2*).
F3464-00	WORKSTATION INTERFACE	PROVIDES BIT SERIAL INTERFACE FOR UP TO FOUR MULTIDROPPED WORKSTATIONS.

* MODE 1 OPERATION HOLDS DEVICE SELECTION UNTIL DATA IS TRANSFERRED.
MODE 2 OPERATION DOES NOT HOLD DEVICE SELECTION; THIS FREES THE
CPU FOR OTHER TASKS DURING PERIPHERAL OPERATIONS.

Figure 2-2. Features and Selections (Sheet 2 of 3)

FEATURE/ SELECTION	NAME	DESCRIPTION
F3465-XX	COMMUNICATIONS INTERFACE	PROVIDES A PROGRAMMABLE SYNCHRONOUS COMMUNICATIONS INTERFACE FOR T8601-XX.
	-00	RS-232-C FULL DUPLEX UP TO 19.2K BPS (REQUIRES C3466-XX)
	-01	EIA RS-449 FULL DUPLEX UP TO 56K BPS
	-03	X.21 FULL DUPLEX UP TO 48K BPS
C3466-XX	MODEM/MUX	SELECTS MODEM OR MULTIPLEXER OPERATION (REQUIRED FOR F3465-00 OPERATION).
	-00	MODEM INTERFACE
	-01	TERMINAL MULTIPLEXER INTERFACE
	-02	DIRECT CONNECT INTERFACE
F3468-00	MAGNETIC TAPE	PROVIDES A T0875 MAGNETIC TAPE DRIVE INTERFACE
C3469-XX	VOLTAGE/ FREQUENCY	PROVIDES VOLTAGE AND FREQUENCY SELECTION FOR T8601-01
	-00	100-120V, 60 HZ
	-01	200-240V, 60 HZ
	-02	100-120V, 60 HZ
	-03	200-240V, 50 HZ

Figure 2-2. Features and Selelctions (Sheet 3 of 3)

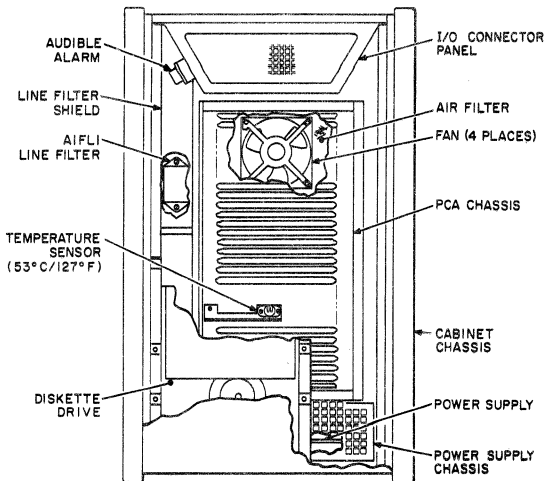
ITEM	SPECIFICATION
<u>ENVIRONMENTAL CHARACTERISTICS</u>	
POWER REQUIREMENTS	100/120/220/240 VAC (+6%, -15%), 50/60 HZ, SINGLE PHASE, 440 WATTS
OPERATING TEMPERATURE	10°C to 34°C (50°F to 93°F)
RATE OF CHANGE	UP TO 11°C (20°F) PER HOUR
RELATIVE HUMIDITY	20% to 85% WITHOUT CONDENSATION
HEAT DISSIPATION	378.8 KCAL/HR (1501.7 BTU/HR)
<u>PHYSICAL CHARACTERISTICS</u>	
CABINET SIZE	HEIGHT 762 MM (30 IN.) WIDTH 483 MM (19 IN.) DEPTH 787 MM (31 IN.)
WEIGHT	79KG (174 LBS)
EQUIPMENT COOLING	200 CFM
EQUIPMENT CIRCUITS	MODULAR SOLID STATE CIRCUITS CONTAINED ON REMOVABLE PCAs

Figure 2-3. Type 8601 Specifications (Sheet 1 of 2)

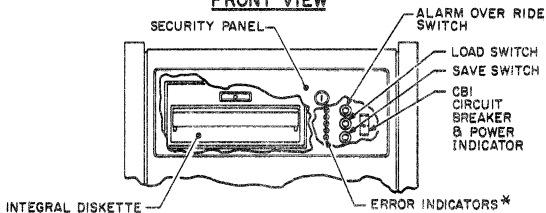
ITEM	SPECIFICATION
FUNCTIONAL CHARACTERISTICS	
STATE MACHINE ARCHITECTURE	THE CPU USES STATE ARCHITECTURE; PROVIDING 32 SIXTEEN-BIT REGISTERS PER STATE. FORTY EIGHT STATES ARE PROVIDED. STATE ARCHITECTURE PROVIDES RAPID SWITCHING FROM ONE PROGRAM TO ANOTHER.
ADDRESS MAPPING	DIRECT ADDRESSING OF UP TO 128K BYTES OF DATA. MEMORY MAPPING TECHNIQUES ADDRESS UP TO 512K BYTES OF DATA.
MAIN MEMORY	64K BYTES OF RAM FOR T8601-00, -01 (ONLY). EXPANDABLE TO 512K BYTES IN 64K BYTE INCREMENTS. T8601-00 THRU -03 IS 256K BYTES, EXPANDABLE TO 2,048K BYTES IN INCREMENTS OF 128K BYTES OR 256K BYTES.
LINE MODULES	LINE MODULES ARE THE INPUT/OUTPUT CONTROLLERS USED FOR ALL ACCESS TO THE CPU. THE LINE MODULES ARE MICROPROCESSOR BASED AND ARE USED TO OFF-LOAD SPECIALIZED PROCESSING FUNCTIONS FROM THE CPU. LINE MODULE TYPES ARE: ● COMMUNICATION INTERFACE ● MAGNETIC TAPE INTERFACE ● 8-BIT PERIPHERAL INTERFACE ● WORKSTATION INTERFACE

Figure 2-3. Type 8601 Specifications (Sheet 2 of 2)

TOP VIEW



FRONT VIEW



* LIGHT NO 5 IS ALSO USED AS A POLL INDICATOR (WHEN FLASHING)

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Figure 2-4. Cluster Controller Major Component Locations

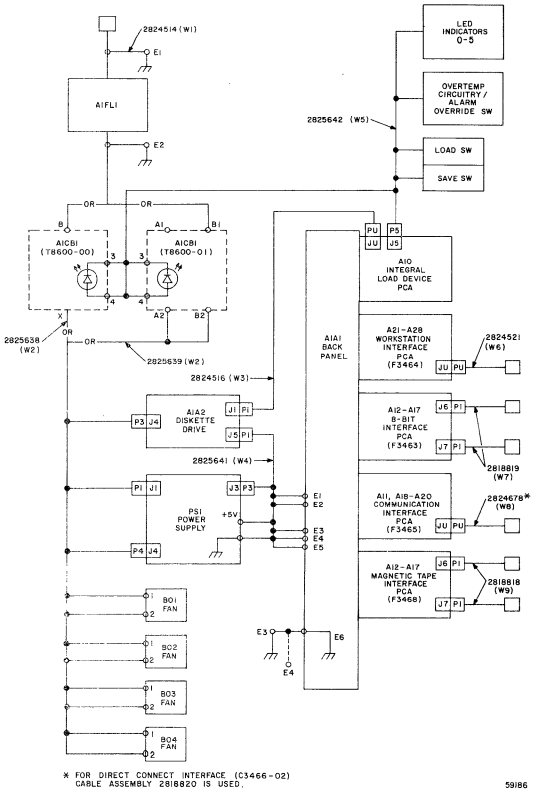
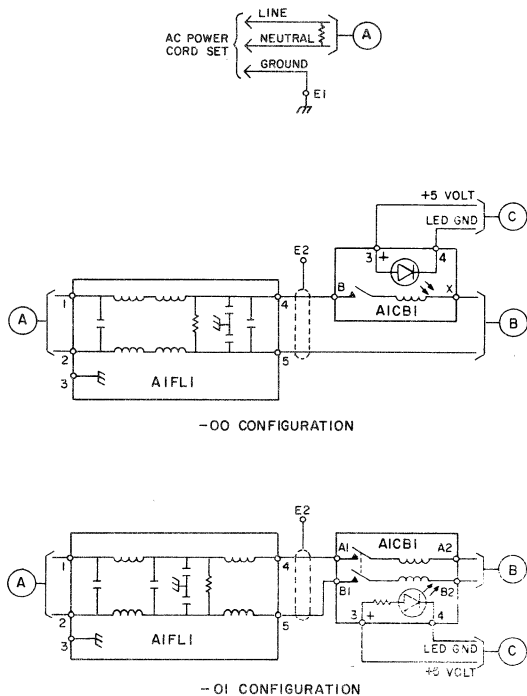


Figure 2-5. Internal Cabling



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Figure 2-6. Type 8601 Cluster Controller Schematic Diagram (Sheet 1 of 6)

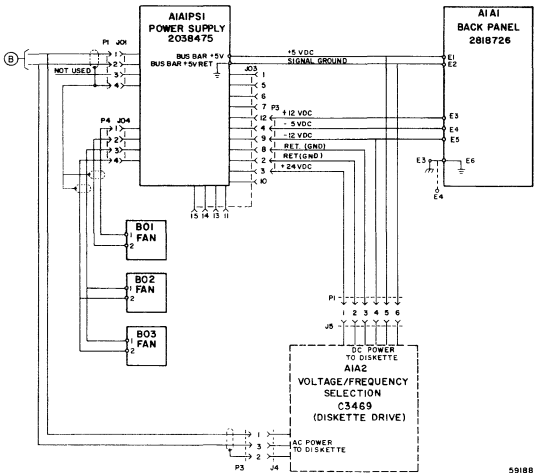


Figure 2-6. Type 8601 Cluster Controller Schematic Diagram (Sheet 2 of 6)

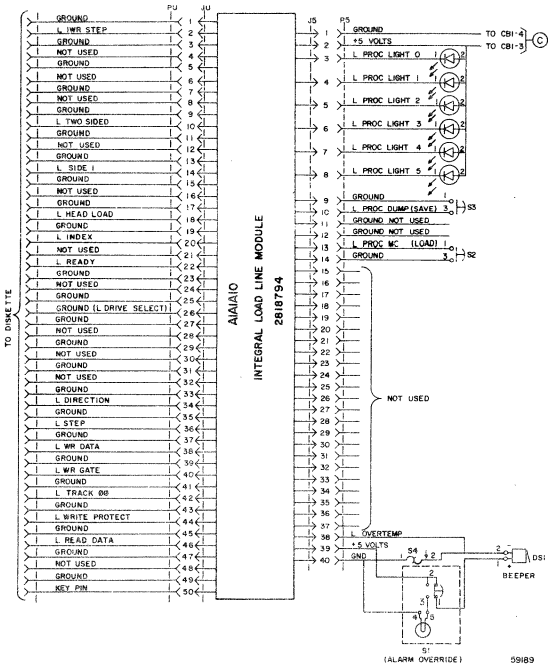


Figure 2-6. Type 8601 Cluster Controller Schematic Diagram (Sheet 3 of 6)

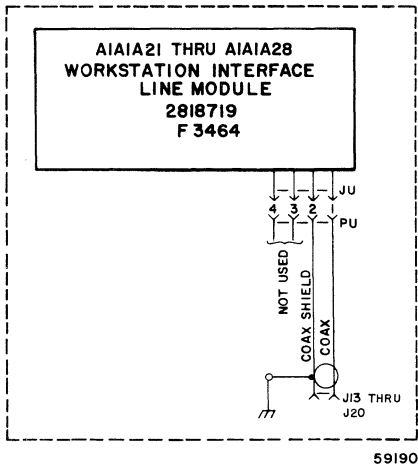


Figure 2-6. Type 8601 Cluster Controller Schematic Diagram
(Sheet 4 of 6)

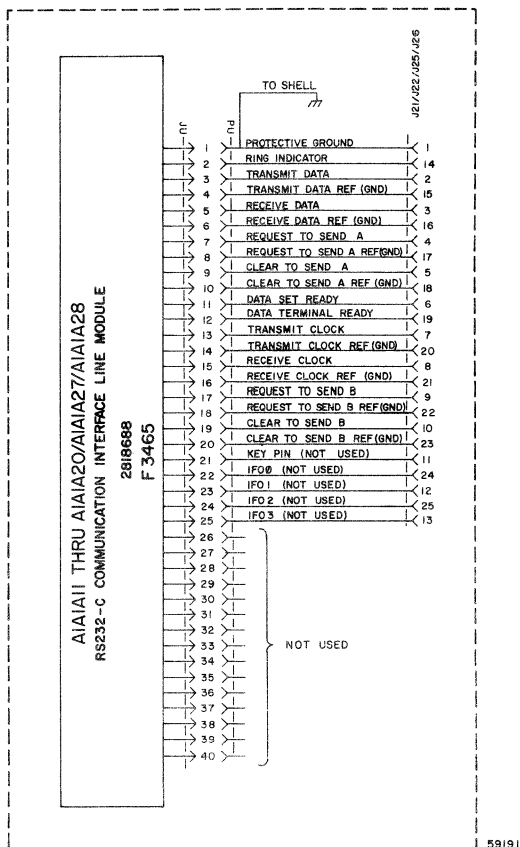
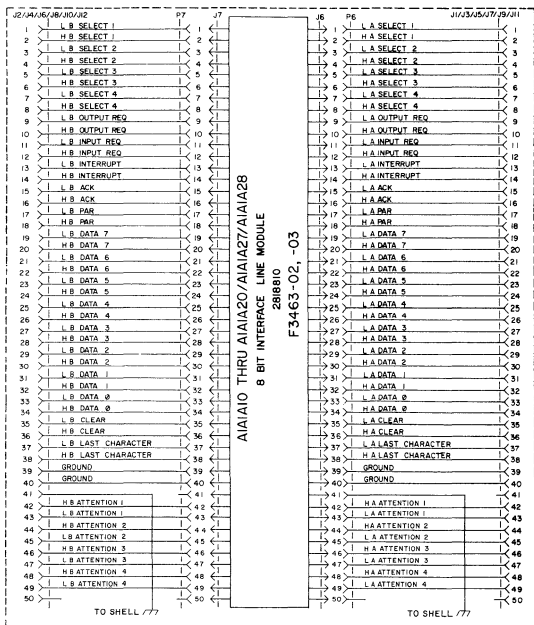
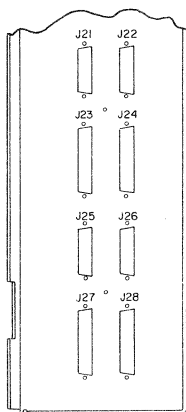
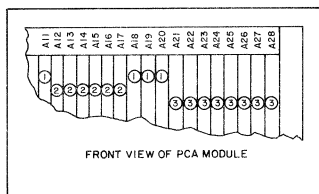


Figure 2-6. Type 8601 Cluster Controller Schematic Diagram
(Sheet 5 of 6)

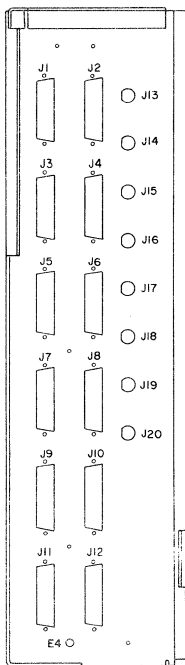


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Figure 2-6. Type 8601 Cluster Controller Schematic Diagram
(Sheet 6 of 6)



I/O PANEL



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Figure 2-7. PCA Placement to I/O Panel Cabling Reference
(Sheet 1 of 2)

<u>ITEM</u>	<u>PCA</u>	<u>PCA LOCATION*</u>	<u>PCA CONNECTOR LOCATION</u>	<u>I/O PANEL LOCATION</u>	<u>CUSTOMER SET-UP LABEL</u>
1	COMMUNICATIONS INTERFACE	A11	JU	J21	COMM RS-232-C PORT 2E
1	COMMUNICATIONS INTERFACE	A18	JU	J22	COMM RS-232-C PORT 24
1	COMMUNICATIONS INTERFACE	A19	JU	J25	COMM RS-232-C PORT 23
1	COMMUNICATIONS INTERFACE	A20	JU	J26	COMM RS-232-C PORT 22
2	8-BIT INTERFACE	A12	J6 J7	J11 J12	8-BIT PORT 2D INTERFACE A 8-BIT PORT 2D INTERFACE B
2	8-BIT INTERFACE	A13	J6 J7	J1 J2	8-BIT PORT 2C INTERFACE A 8-BIT PORT 2C INTERFACE B
2	8-BIT INTERFACE	A14	J6 J7	J3 J4	8-BIT PORT 2B INTERFACE A 8-BIT PORT 2B INTERFACE B
2	8-BIT INTERFACE	A15	J6 J7	J5 J6	8-BIT PORT 2A INTERFACE A 8-BIT PORT 2A INTERFACE B
2	8-BIT INTERFACE	A16	J6 J7	J7 J8	8-BIT PORT 29 INTERFACE A 8-BIT PORT 29 INTERFACE B
2	8-BIT INTERFACE	A17	J6 J7	J9 J10	8-BIT PORT 28 INTERFACE A 8-BIT PORT 28 INTERFACE B
3	WORKSTATION INTERFACE	A21	JU	J13	WORKSTATION PORT 0
3	WORKSTATION INTERFACE	A22	JU	J14	WORKSTATION PORT 1
3	WORKSTATION INTERFACE	A23	JU	J15	WORKSTATION PORT 2
3	WORKSTATION INTERFACE	A24	JU	J16	WORKSTATION PORT 3
3	WORKSTATION INTERFACE	A25	JU	J17	WORKSTATION PORT 4
3	WORKSTATION INTERFACE	A26	JU	J18	WORKSTATION PORT 5
3	WORKSTATION INTERFACE	A27	JU	J19	WORKSTATION PORT 6
3	WORKSTATION INTERFACE	A28	JU	J20	WORKSTATION PORT 7

* REFER TO PCA COMPLEMENT AND PLACEMENT FIGURE FOR PCA LOCATION PRIORITY.

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Figure 2-7. PCA Placement to I/O Panel Cabling Reference
(Sheet 2 of 2)

COMPANY CONFIDENTIAL

REVISION: HCB-1

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A1	MEMORY ARRAY 5	NOTE 5	RED	A1
A2	MEMORY ARRAY 4	NOTE 4	RED	A2
A3	MEMORY ARRAY 3	NOTE 3	RED	A3
A4	MEMORY ARRAY 2	NOTE 2	RED	A4
A5	ERROR CORRECTION	(SEE NOTE 2)	VIO	A5
A6	MEMORY CONTROL	(2818723)	YEL	A6
A7	SEQ MICRO STORE	(2818725)	ORN	A7
A8	REGISTER STACK	(2818727)	BLU	A8
A9	ARITHMETIC UNIT	(2818724)	BLK	A9
A10	ILD	(2818794)	GRN	A10
A11	SEE FEATURE PLACEMENT BELOW			A11
A12				A12
A13				A13
A14				A14
A15				A15
A16				A16
A17				A17
A18				A18
A19				A19
A20				A20
A21				A21
A22				A22
A23				A23
A24				A24
A25				A25
A26				A26
A27				A27
A28				A28

NOTES:

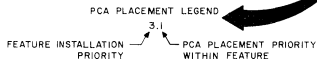
- PCAs IN SLOTS A1 THRU A10 ARE POSITION SENSITIVE. PCAs IN SLOTS A11 THRU A28 ARE CONFIGURATION SENSITIVE.
- ERROR CORRECTION PCA 2818783 (64K) IS USED FOR T8601-00, -01 (ONLY). ERROR CORRECTION PCA 2818907 (256K) F3462-04 MAY BE USED FOR T8601-00 THRU -03, HOWEVER MEMORY ARRAY PCA 2818779 (64K) CAN NOT BE USED WITH F3462-04.
- MEMORY ARRAY PCA 2818779 (F3462-01) IS USED TO EXPAND MEMORY FOR T8601-00, -01 (ONLY). MEMORY ARRAY PCA 2818917 (F3462-05) AND 2818906 (F3462-06) ARE USED TO EXPAND MEMORY FOR F3462-04. IF F3462-05 IS USED, IT MUST OCCUPY THE LAST MEMORY ARRAY LOCATION IN USE.

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Figure 2-8. PCA Complement and Placement (Sheet 1 of 2)

FEATURE PLACEMENT

FEATURE NUMBER	PCA	PCA PLACEMENT																											
		A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28										
F3465	COMMUNICATIONS INTERFACE (2818688)	1.1							1.2	1.3	1.4																		
F3468	MAG TAPE INTERFACE (2818823)		2.1	2.2	2.3	2.4	2.5	2.6																					
F3464	WORKSTATION INTERFACE (2818719)											3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8										
F3463	8-BIT INTERFACE (2818810)		4.1	4.2	4.3	4.4	4.5	4.6																					

TYPICAL CONFIGURATION

FEATURE NUMBER	PCA	PCA PLACEMENT																										
		A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28									
F3465	COMMUNICATIONS INTERFACE (2818688)	X																										
F3468	MAG TAPE INTERFACE (2818823)																											
F3464	WORKSTATION INTERFACE (2818719)											X	X	X														
F3463	8-BIT INTERFACE (2818810)		X	X																								

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Figure 2-8. PCA Complement and Placement (Sheet 2 of 2)

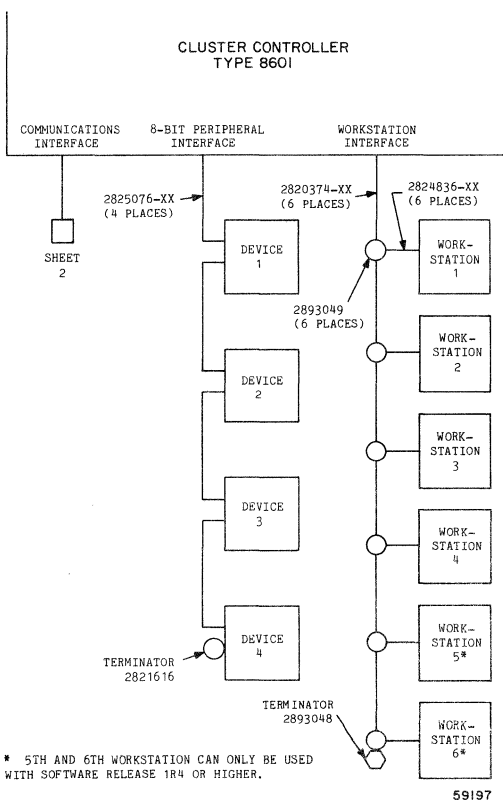


Figure 2-9. System Cabling (Sheet 1 of 2)

Cable Assembly Number	P1	JB*	P2	CTMC*	DCS/ LTC*	CSP*	GCS*	S2E/ CA*	DCP 20/40*	SC I/ MCC*	Used to Connect*
2820468-XX	0	0									CC to MUX or DCM
2822139-XX	0	0									CC or MUX to MO or DCM
2822140-XX	0	0**									CC or MUX to MO
2825014-XX	0	0									CC or MUX to JB
2825013-XX		0	0								JB to MO, MUX, or DCM
2807725-XX		0	0								JB to JB
2807765-XX		0	0								JB to JB
2871358-XX	0	0									DCM to DCM
2807748-XX	0		0								DS or MUX to CTMC
2807754-XX		0	0								JB to CTMC
2807867-XX	0			0							DS or MUX to DCS or LTC
2807868-XX		0		0							JB to DCS or LTC
2811650-XX	0				0						DS or MUX to CSP
2811649-XX		0			0						JB to CSP
6432694-XX	0					0					DS or MUX to GCS
6432697-XX		0				0					JB to GCS
2814087-XX	0						0				DS or MUX to S2E or CA
2814088-XX		0					0				JB to S2E or CA
2824691-XX	0							0			DS or MUX to DCP 20/40
2824690-XX		0						0			JB to DCP 20/40
2823706-XX	0								0		DS or MUX to SC I or MCC
2823802-XX		0							0		JB to SC I or MCC

*Symbols are defined as follows:

CC - Cluster Controller
CA - Communications Adaptor
JB - Junction Box
MO - Modem

CSP - Communications Symbiont Processor
DCS - Data Communication Subsystem
GCS - General Communications Subsystem
LTC - Line Terminal Controller
MCC - Multichannel Communications Controller

S2E - Scanner II E
CTMC - Communications Terminal
Module Controller
SC I - Scanner I
DCP 20/40 - Distributed Communications
Processor

**P2 is a metric connector

59198

Figure 2-9. System Cabling (Sheet 2 of 2)

SECTION 3

INSTALLATION CHECK PROCEDURES

INSTALLATION CHECK PROCEDURE

001
ARE PERIPHERAL DEVICES CONNECTED WITH CORRECT CABLES?
(REFER TO THE SYSTEM CABLING FIGURE IN SECTION 2.)
Y N
|
002
CORRECT PERIPHERAL CABLING.

003
IS THE COMMUNICATIONS LINK CABLING CONNECTED CORRECTLY?
(REFER TO THE SYSTEM CABLING FIGURE IN SECTION 2.)
Y N
|
004
CORRECT COMMUNICATIONS LINK CABLING.

005
IS THE AC POWER CABLE CONNECTED INTO AN AC OUTLET?
Y N
|
006
CONNECT AC POWER CABLE.

007
-APPLY POWER TO ALL SYSTEM DEVICES.

DO ALL SYSTEM DEVICES COMPLETE THEIR SPECIFIC POC SUCCESS-
FULLY? (REFER TO SPECIFIC PERIPHERAL DOCUMENTATION.)
Y N
|
008
- PERFORM TROUBLESHOOTING ON FAILED DEVICE(S).
- RETURN TO STEP 007.

009
-LOAD SYSTEM DISKETTE IN CLUSTER CONTROLLER.
-PERFORM SYSTEM VERIFICATION ROUTINES.

Figure 3-1. Installation Check Procedures

UTS 4020 CLUSTER CONTROLLER TYPE 8601 SYSTEM VERIFICATION TEST (SVT)

This SVT is designed as a guide for final verification to ensure that the cluster controller system is ready for use (RFU). System verification can not be completed without knowing each device's operational characteristics. Applicable user publications, including operator guides, configurator guide, and system reference manuals, can be used as reference material to complete this SVT. Manuals needed depend on the customer's system configuration.

Failure to complete the SVT successfully makes the system not RFU. Follow current maintenance procedures to correct any failure.

Prerequisites are:

- o All system devices have completed their POCs and are operational.
- o CE must be familiar with applicable user manuals for all system devices.
- o CE must know the customer's configuration and device identification conventions.

ENSURE THE EQUIPMENT LAYOUT IS PER CUSTOMER REQUIREMENT.

APPLY POWER TO THE CLUSTER CONTROLLER AND WORKSTATION 1.

LOAD THE SYSTEM DISKETTE.

ENSURE SUCCESSFUL COMPLETION OF SOFT POC.

EXECUTE THE CONFIGURATOR UTILITY.

APPLY POWER TO REMAINING WORKSTATIONS AND PERIPHERALS.

LOAD THE OPERATING SYSTEM.

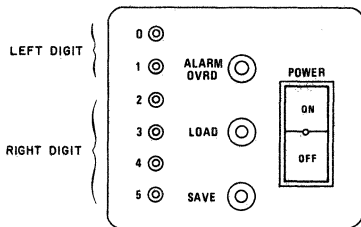
ACCESS ALL SYSTEM DEVICES TO ENSURE THAT EACH DEVICE IS OPERATIONAL WITHIN THE SYSTEM CONFIGURATION.

SYSTEM IS OPERATIONAL.

Figure 3-2. System Verification Test

SECTION 4

TROUBLESHOOTING AND MAINTENANCE AIDS

LEFT
DIGIT

LIGHTS	PATTERNS			
0	○	○	★	★
1	○	★	○	★
HEX VALUE	0	1	2	3

RIGHT
DIGIT

LIGHTS	PATTERNS															
2	○	○	○	○	○	○	○	○	★	★	★	★	★	★	★	★
3	○	○	○	○	★	★	★	★	○	○	○	○	★	★	★	★
4	○	○	★	★	○	○	★	★	○	○	★	★	○	○	★	★
5	○	★	○	★	○	★	○	★	○	★	○	★	○	★	○	★
HEX VALUE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

ON	0	★	} = 2
OFF	1	○	
OFF	2	○	} = 6
ON	3	★	
ON	4	★	
OFF	5	○	

EXAMPLETHEREFORE, FRONT PANEL LIGHTS EQUAL 26.

59199

Figure 4-1. Error Stop Codes (Sheet 1 of 5)

HEX.	ERROR	EXPLANATION	PROBABLE FAULT
00	SYSTEM OPERATIONAL		
01	ALU FAILURE	ROM POC FAILURE DURING ALU VALIDATION. (FLASHING INDICATOR INDICATES A COMMUNICATIONS POLLING SEQUENCE.)	ARITHMETIC UNIT
02	MICRO RAM FAILURE	ROM POC FAILURE DURING MICRO-MEMORY VALIDATION.	SEQ. MICRO STORE
03	SOFT POC LOADED	NOT AN ERROR. SOFT POC HAS BEEN SUCCESSFULLY LOADED AND IS EXECUTING.	
04	MEMORY ARRAY #1	SOFT POC FAILURE DURING MACRO-MEMORY VALIDATION. PCA MODULE LOCATION IS A5, A4L THROUGH A2L FOR MEMORY ARRAY #1 THROUGH MEMORY ARRAY #4.	MEMORY ARRAY*
05	MEMORY ARRAY #2		
06	MEMORY ARRAY #3		
07	MEMORY ARRAY #4		
08	ILLEGAL VECTOR ERROR	SOFT POC FAILURE WHICH INDICATES AN UNEXPECTED ERROR VECTOR OR AN UN- EXPECTED LINE MODULE VECTOR.	
09	MAIN MEMORY ADDRESSING ERROR	SOFT POC FAILURE DURING MACRO-MEMORY ADDRESS LINE VALIDATION.	MEMORY CONTROL/ MEM. ARRAY

* MEMORY ARRAY #1 IS CONTAINED ON THE ERROR CORRECTION PCA MODULE.

Figure 4-1. Error Stop Codes (Sheet 2 of 5)

HEX.	ERROR	EXPLANATION	PROBABLE FAULT
0A	MEMORY MAP ERROR	SOFT POC FAILURE DURING MACRO-MEMORY MAP VALIDATION.	MEMORY CONTROL
0B	CHAIN STACK ERROR	SOFT POC FAILURE DURING SYSTEM CHAIN STACK VALIDATION.	ARITHMETIC UNIT
0C	REGISTER STACK ERROR	SOFT POC FAILURE DURING REGISTER STACK VALIDATION.	REGISTER STACK
0D	INTERNAL REGISTER	SOFT POC FAILURE DURING ALU INTERNAL REGISTER VALIDATION.	ARITHMETIC UNIT
0E	LOADING CLUSTER FIRST PASS	NOT AN ERROR. INDICATES THAT A RELOAD OF SOFT POC IS IN PROGRESS.	
0F	ILD POC ERROR	ROM POC FAILURE DURING ILD VALIDATION.	ILD
10	MEMORY ARRAY #5	SOFT POC FAILURE DURING MACRO-MEMORY VALIDATION. PCA MODULE LOCATION IS A1L, A4U THROUGH A2U FOR MEMORY ARRAY #5 THROUGH MEMORY ARRAY #8.	MEMORY ARRAY
11	MEMORY ARRAY #6		
12	MEMORY ARRAY #7		
13	MEMORY ARRAY #8		
14	ECC ERROR	SOFT POC FAILURE DURING ECC LOGIC VALIDATION.	ERROR CORRECTION

Figure 4-1. Error Stop Codes (Sheet 3 of 5)

HEX.	ERROR	EXPLANATION	PROBABLE FAULT
15/ 16	ILLEGAL LM VECTOR	INDICATES AN ILLEGAL VECTOR FROM A LINE MODULE	
17	MEMORY MAP PROTECT ERROR	A MEMORY WRITE/READ ATTEMPTED INTO A WRITE/READ PROTECTED PAGE.	
18	D-BUS PARITY ERROR	INDICATES HARDWARE BUS PARITY ERROR.	
19	MICRO-RETRY ERROR	ANY MICROINSTRUCTION WHICH FAILS IS RETRIED. IF, ON THE SECOND ATTEMPT, THE INSTRUCTION FAILS, THIS ERROR IS GENERATED.	
1A	COMPARE ERROR	INDICATES A COMPARE ERROR FROM THE REDUNDANT PROCESSORS ON THE ALU.	
1B	LM VECTOR PARITY ERROR	INDICATES BAD PARITY READ FROM A LINE MODULE'S VECTOR.	
1C	MAIN MEMORY ERROR	INDICATES BAD PARITY FOUND WHEN READING MAIN MEMORY, OR MEMORY ACCESSED WHICH IS OUT-OF-BOUNDS OR WRITE PROTECTED.	

Figure 4-1. Error Stop Codes (Sheet 4 of 5)

HEX.	ERROR	EXPLANATION	PROBABLE FAULT
1D	LM DATA ERROR	INDICATES BAD PARITY READ IN A LINE MODULE'S DATA.	
1E	UNKNOWN HARDWARE ERROR	INDICATES A HARDWARE ERROR DETECTED WITH NO SPECIFIC BITS INDICATING THE REASON FOR THE FAULT.	
1F	INSTRUCTION FAULT (PRIVILEGE STATE)	INDICATES THE SUPERVISOR OR DEBUG PACKAGE ATTEMPTED TO EXECUTE AN ILLEGAL INSTRUCTION.	
20/ 3E	SOFTWARE STOPS	REFER TO UP9155, SPERRY UNIVAC UTS 4020 SYSTEM TROUBLE ISOLATION GUIDE.	
3F	MICRO SEQUENCER FAULT	ROM POC FAILURE DURING MICRO-SEQUENCER VALIDATION.	SEQ. MICRO STORE

Figure 4-1. Error Stop Codes (Sheet 5 of 5)

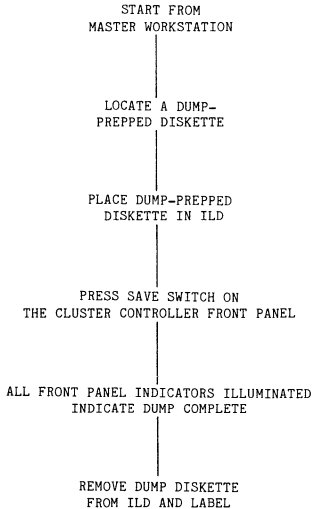


Figure 4-2. Dump Routine (Double Sided Media)

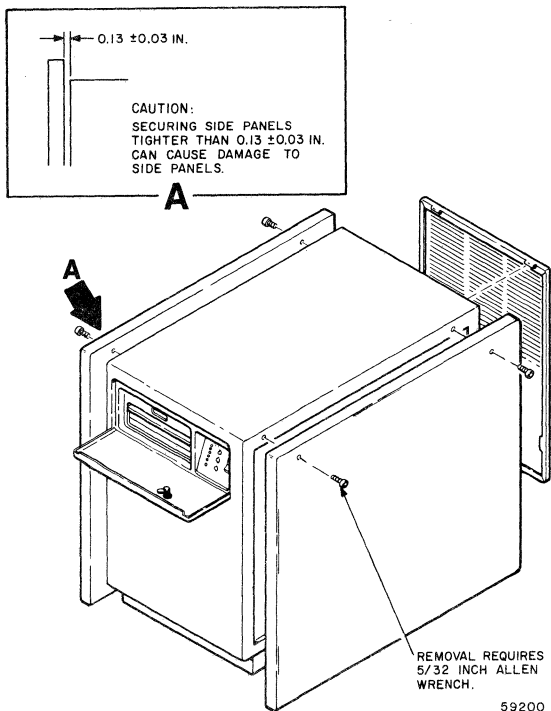


Figure 4-3. Side/Rear Panel Removal/Replacement

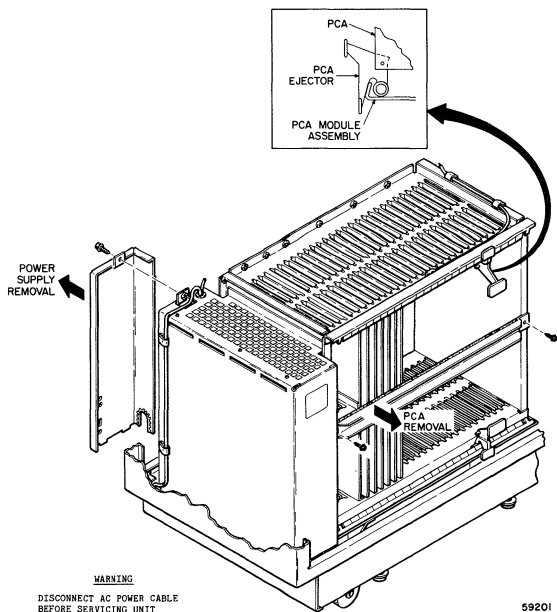


Figure 4-4. PCA Removal/Replacement

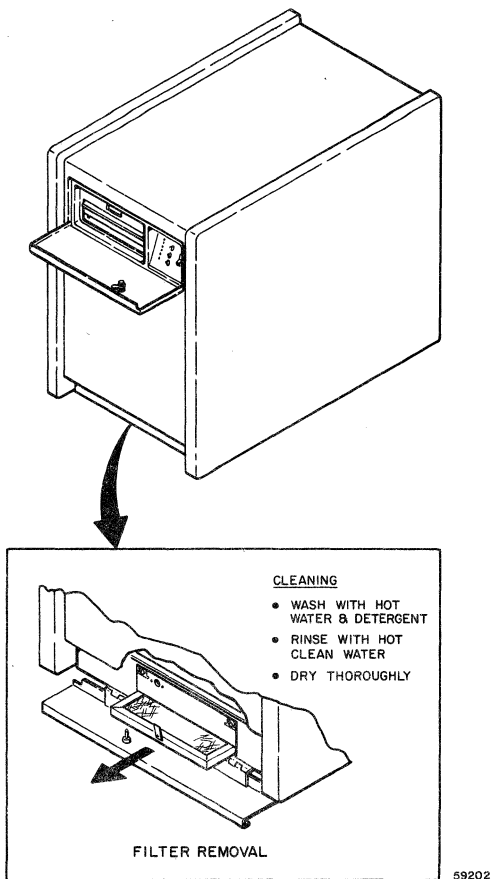


Figure 4-5. Air Filter Removal/Replacement and Cleaning

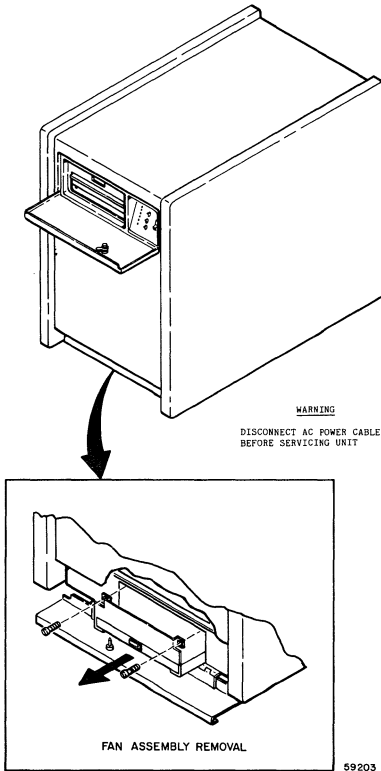


Figure 4-6. Fan Assembly Removal/Replacement

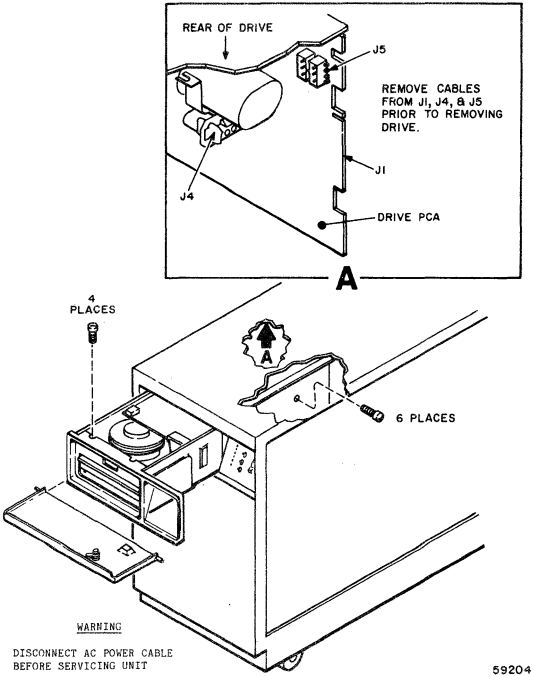
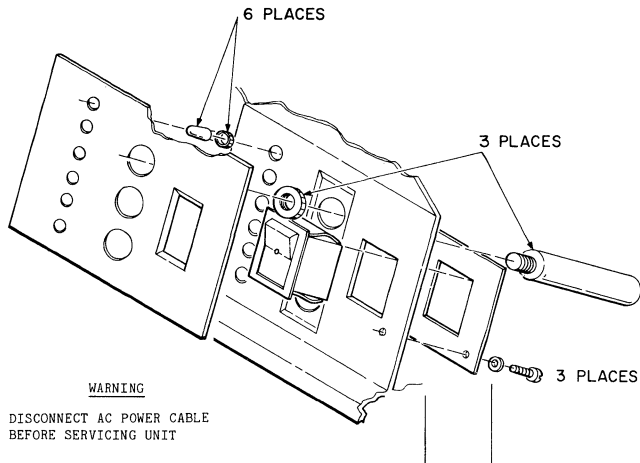


Figure 4-7. ILD/Bezel Removal/Replacement



WARNING

DISCONNECT AC POWER CABLE
BEFORE SERVICING UNIT

NOTE: BEZEL MUST BE REMOVED PRIOR TO THIS PROCEDURE

59205

Figure 4-8. Front Panel Switch/Indicator Removal/Replacement

02050028-000	DIGITAL DC VOLTMETER
02821991-000	LED TEST MODULE
02812738-057	LED TEST MODULE MASK (LTMM) REGISTER STACK
02812738-058	LTMM REGISTER STACK
02812738-059	LTMM REGISTER STACK
02812738-029	LTMM SEQUENCER MICROSTORE
02812738-062	LTMM ARITHMETIC
02812738-063	LTMM ARITHMETIC
02812738-047	LTMM ILD LINE MODULE
02812738-060	LTMM MEMORY CONTROL
02812738-061	LTMM MEMORY CONTROL
02812738-052	LTMM COMMUNICATIONS INTERFACE LINE MODULE
02812738-048	LTMM WORKSTATION INTERFACE LINE MODULE
02812738-053	LTMM 8-BIT INTERFACE LINE MOUDLE
02818449-003	I/O COMMUNICATIONS TESTER
09040177-000	DISKETTE EXERCISER
02893177-000	DISKETTE, HEAD CLEANER
02893181-000	DISKETTE, CE ALIGNMENT
02050156-000	CRIMP TOOL, COAX
02892217-000	LUBRICANT, 1/2 PINT
03013817-002	ADHESIVE, THREAD LOCK
DR2561-13	DIAGNOSTIC MEDIA

Figure 4-9. Tools and Test Equipment

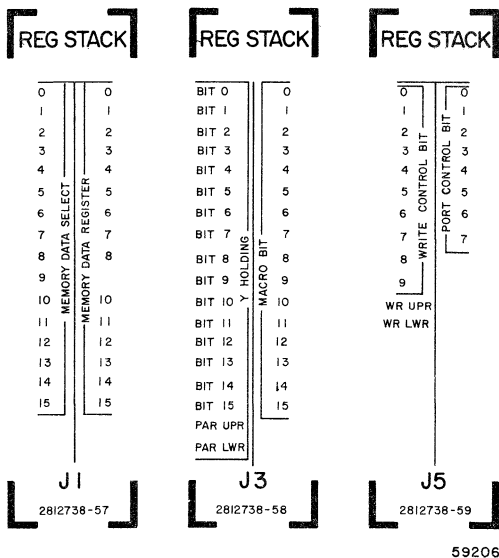
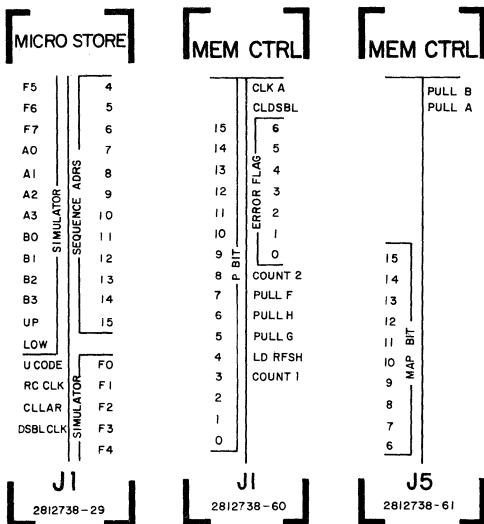
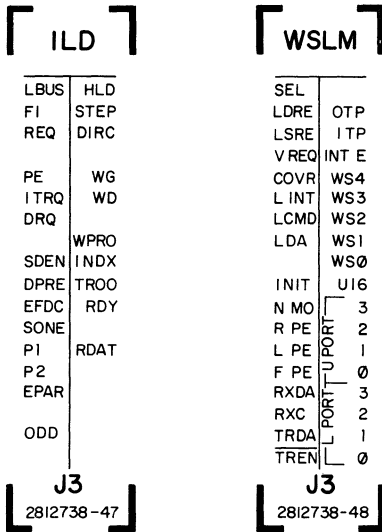


Figure 4-10. LED Test Module Masks (Sheet 1 of 5)



59207

Figure 4-10. LED Test Module Masks (Sheet 2 of 5)



59208

Figure 4-10. LED Test Module Masks (Sheet 3 of 5)

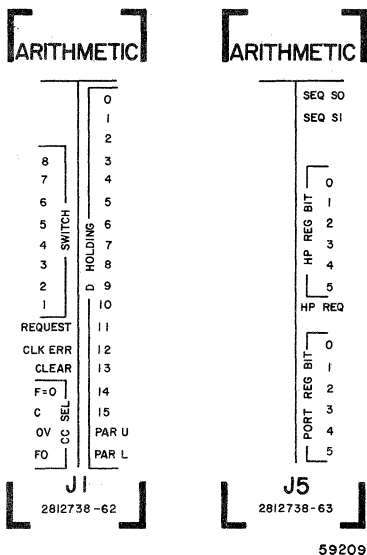
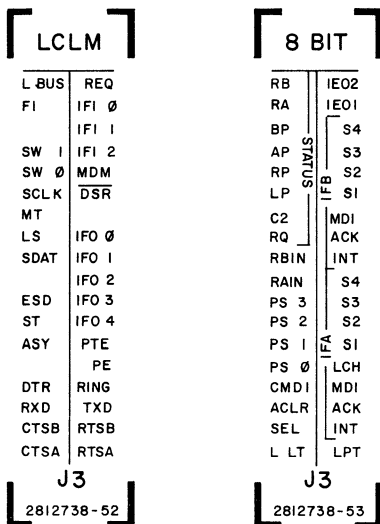


Figure 4-10. LED Test Module Masks (Sheet 4 of 5)

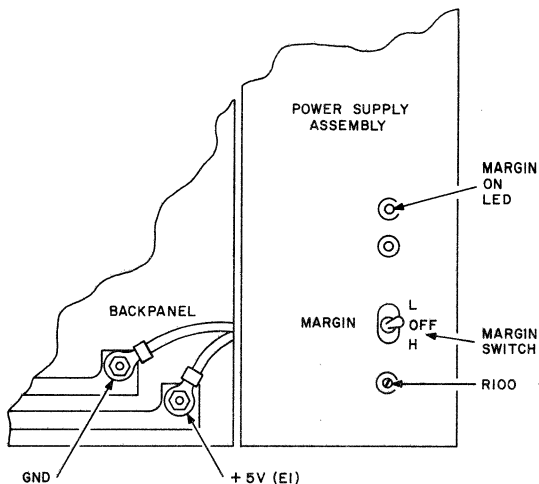


59210

Figure 4-10. LED Test Module Masks (Sheet 5 of 5)

SECTION 5

ADJUSTMENTS



ADJUSTMENT

- 1 - Set MARGIN switch to off position
(MARGIN ON LED off)
- 2 - Monitor voltage at E1
- 3 - Adjust R100 for $+5.1V \pm 0.05V$

59211

Figure 5-1. Power Supply Adjustment

REFER TO:

HB2356 SPERRY UNIVAC DISKETTE MECHANISM
P/N 9042234 THRU 9042337
SERVICING

Figure 5-2. ILD Adjustments

SECTION 6

POWER INFORMATION

WARNING

Disconnect ac power cable before the unit is opened for service to remove the danger of electrical shock or equipment damage. Type 8601-00 units have a single pole circuit breaker in the ac circuit. If wall receptacle is faulty or if voltage polarity is in error, ac power is applied to unit chassis when circuit breaker is open.

INPUT POWER

T8601-00

VOLTAGE: 120 VAC (+6%, -15%)
 FREQUENCY: 60 HERTZ
 PHASE: SINGLE
 POWER: 440 WATTS

T8601-01

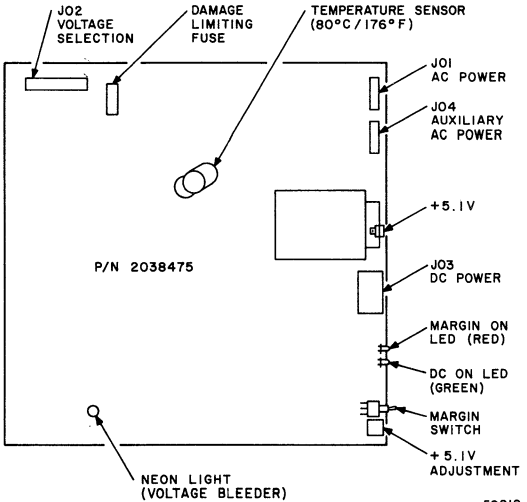
VOLTAGE: 100, 120, 220, 240 VAC (+6%, -15%)
 FREQUENCY: 50 OR 60 HERTZ
 PHASE: SINGLE
 POWER: 440 WATTS

DC VOLTAGES

(POWER SUPPLY OUTPUT - ALL CONFIGURATIONS)

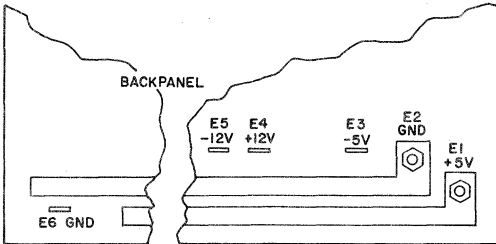
VOLTAGE	TOLERANCE	CURRENT (MAX)	RIPPLE (MAX)
+ 5.2	± 1%	68.0A	100MV
+12.0	±10%	4.3A	250MV
+24.0	±10%	1.5A	500MV
- 5.0	±10%	0.8A	100MV
-12.0	±10%	0.15A	250MV

Figure 6-1. Power Specifications



59212

Figure 6-2. Power Supply PCA Layout



<u>VOLTAGE</u>	<u>TOLERANCE</u>
+5.1V	+5.05V to +5.15V
+12V	+11.88V to +12.12V
+24V(ILD J5-1)	+23.64V to +24.36V
-5V	-4.5V to -5.5V
-12V	-11.88V to -12.12V

59213

Figure 6-3. Voltage Test Points

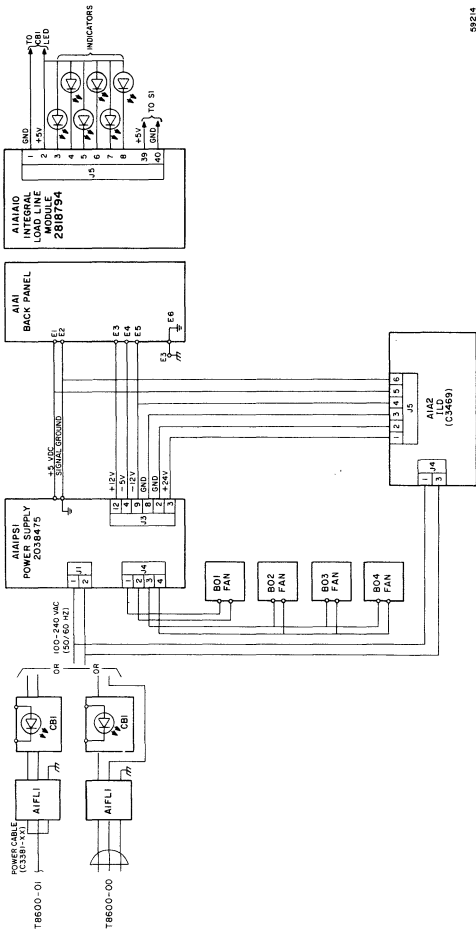


Figure 6-4. Type 8601 Cluster Controller Power Distribution

J1 AC POWER	
PIN	SIGNAL NAME
J1-01	AC INPUT
J1-02	AC INPUT
J1-03	NOT USED
J1-04	CHASSIS GROUND

J3 DC POWER	
PIN	SIGNAL NAME
J3-01	RETURN
J3-02	RETURN
J3-03	+24 V
J3-04	-5 V
J3-05	RETURN
J3-06	RETURN
J3-07	NOT USED
J3-08	RETURN
J3-09	-12 V
J3-10	NOT USED
J3-11	NOT USED
J3-12	+12 V
J3-13	NOT USED
J3-14	NOT USED

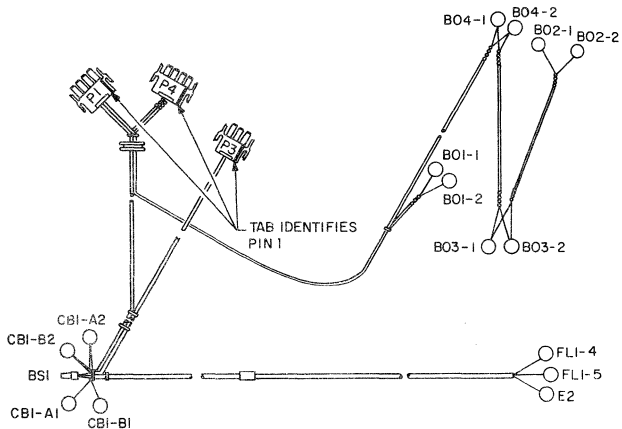
J4 AUXILIARY AC POWER	
PIN	SIGNAL NAME
J4-1	AC FAN OUTPUT
J4-2	AC FAN OUTPUT
J4-3	AC FAN OUTPUT
J4-4	AC FAN OUTPUT

BUS BAR	
+	+5.1 V
-	RETURN

Figure 6-5. Power Supply PCA Pin Configuration

SECTION 7

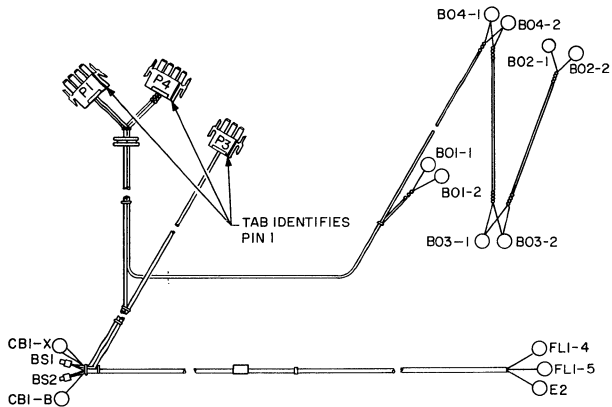
CABLE INFORMATION



FL1-5	CIRCUIT
CB1-B1	BREAKER
FL1-4	CIRCUIT
CB1-A1	BREAKER
E2	CHASSIS
BS1	GROUND
CB1-A2	POWER
P1-1	SUPPLY
CB1-B2	POWER
P1-2	SUPPLY
P1-4	CHASSIS
BS1	GROUND
CB1-A2	ILD
P3-1	ILD
CB1-B2	ILD
P3-2	ILD
P3-3	ILD
BS1	
P4-1	FAN
B01-1	
P4-2	FAN
B01-2	
P4-3	FAN
B03-1	
P4-4	FAN
B03-2	
B03-1	FAN
B02-1	
B03-2	FAN
B02-2	
B04-1	FAN
B03-1	
B04-2	FAN
B03-2	

59215

Figure 7-1. AC Harness Assembly 2825639

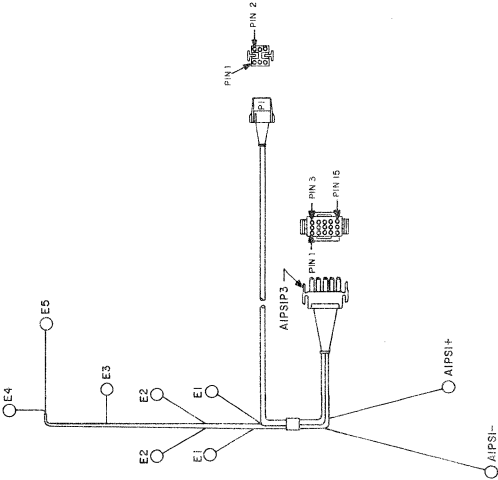


FL1-4	CIRCUIT
CB1-B	BREAKER
FL1-5	POWER
BS2	SUPPLY
E2	CHASSIS
BS1	GROUND
CB1-X	POWER
P1-1	SUPPLY
P1-2	POWER
BS2	SUPPLY
P1-4	CHASSIS
BS1	GROUND
CB1-X	ILD
P3-1	ILD
P3-2	ILD
BS2	ILD
P3-3	ILD
BS1	ILD
P4-1	FAN
B01-1	FAN
P4-2	FAN
B01-2	FAN
P4-3	FAN
B03-1	FAN
P4-4	FAN
B03-2	FAN
B03-1	FAN
B02-1	FAN
B03-2	FAN
B02-2	FAN
B04-1	FAN
B03-1	FAN
B04-2	FAN
B03-2	FAN

59216

Figure 7-2. AC Harness Assembly 2825638

P1-1	+24V
A1PS1P3-3	GROUND
P1-2	GROUND
A1PS1P3-2	
P1-3	GROUND
A1PS1P3-8	
P1-4	-12V
A1PS1P3-9	
A1PS1P3-9	-12V
A1PS1	
A1PS1P3-4	-5V
A1PS1	
A1PS1P3-12	+12V
A1PS1	
A1PS1	+5V
P1-6	
A1PS1	+5V
P1-6	RETURN
A1PS1	+5V
A1PS1 +	
A1PS1	-5V
A1PS1 -	RETURN



59217

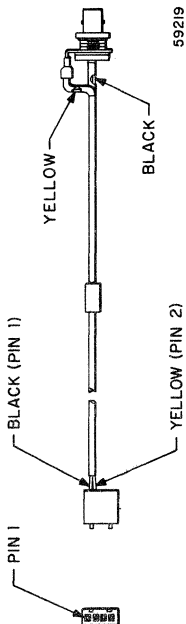


Figure 7-5. BNC Cable Assembly 2824521

PU-1	PROTECTIVE
P2-1	GROUND
PU-2	RING
P2-14	INDICATOR
PU-3	TRANSMIT
P2-2	DATA
PU-4	TRANSMIT
P2-15	DATA (REF)
PU-5	RECEIVE
P2-3	DATA
PU-6	RECEIVE
P2-16	DATA (REF)

PU-7	REQUEST TO
P2-4	SEND A
PU-8	REQUEST TO
P2-17	SEND A (REF)
PU-9	CLEAR TO
P2-5	SEND A
PU-10	CLEAR TO
P2-18	SEND A (REF)
PU-11	DATA SET READY
P2-6	
PU-12	DATA TERMINAL
P2-19	READY

PU-13	TRANSMIT
P2-7	CLOCK
PU-14	TRANSMIT
P2-20	CLOCK (REF)
PU-15	RECEIVE CLOCK
P2-8	
PU-16	RECEIVE CLOCK
P2-21	(REF)
PU-17	REQUEST TO
P2-9	SEND B
PU-18	REQUEST TO
P2-22	SEND B (REF)

PU-19	CLEAR TO
P2-10	SEND B
PU-20	CLEAR TO
P2-23	SEND B (REF)
PU-21	KEY
P2-11	
PU-22	NOT USED
P2-24	
PU-23	NOT USED
P2-12	
PU-24	NOT USED
P2-25	
PU-25	NOT USED
P2-13	

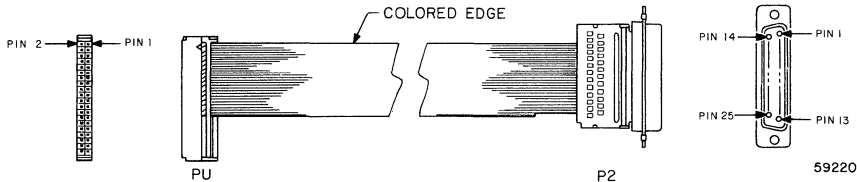


Figure 7-6. Internal RS232 Communications Cable Assembly 2824678

P1-1	PROTECTIVE GROUND
J2-1	
P1-2	RING
J2-14	INDICATOR
P1-3	TRANSMIT DATA
J2-2	
P1-4	TRANSMIT DATA (REF)
J2-15	
P1-5	RECEIVE DATA
J2-3	
P1-6	RECEIVE DATA (REF)
J2-16	
P1-7	REQUEST TO SEND A
J2-4	
P1-8	REQUEST TO SEND A (REF)
J2-17	
P1-9	CLEAR TO SEND A (REF)
J2-5	

P1-10	CLEAR TO SEND A (REF)
J2-18	
P1-11	DATA SET READY
J2-6	
P1-12	DATA TERMINAL READY
J2-19	
P1-13	TRANSMIT CLOCK
P1-33	
J2-7	
P1-14	TRANSMIT CLOCK (REF)
J2-20	
P1-15	RECEIVE CLOCK
P1-35	
J2-8	
P1-16	RECEIVE CLOCK (REF)
J2-21	
P1-17	REQUEST TO SEND B
J2-9	

P1-18	REQUEST TO SEND B (REF)
J2-22	
P1-19	CLEAR TO SEND B
J2-10	
P1-20	CLEAR TO SEND B (REF)
J2-23	
P1-21	KEY (NOT USED)
J2-11	
P1-22	NOT USED
J2-24	
P1-23	NOT USED
J2-12	
P1-24	NOT USED
J2-25	
P1-25	NOT USED
J2-13	

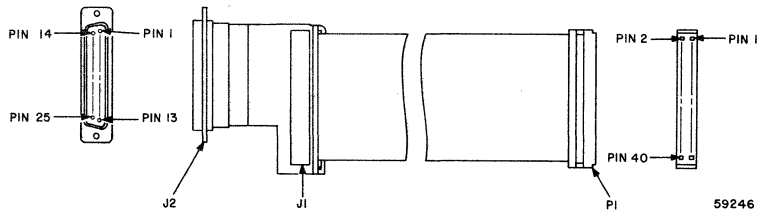


Figure 7-7. Internal Direct Connect Communications Cable Assembly 2818820

P1-1 J2-1	L SELECT 1	P1-11 J2-11	L INPUT REQ	P1-21 J2-21	L DATA 6	P1-31 J2-31	L DATA 1	P1-41 J2-41	SHIELD GROUND
P1-2 J2-2	H SELECT 1	P1-12 J2-12	H INPUT REQ	P1-22 J2-22	H DATA 6	P1-32 J2-32	H DATA 1	P1-42 J2-42	H ATTENTION 1
P1-3 J2-3	L SELECT 2	P1-13 J2-13	H INTERRUPT	P1-23 J2-23	L DATA 5	P1-33 J2-33	L DATA 0	P1-43 J2-43	L ATTENTION 1
P1-4 J2-4	H SELECT 2	P1-14 J2-14	L INTERRUPT	P1-24 J2-24	H DATA 5	P1-34 J2-34	H DATA 0	P1-44 J2-44	H ATTENTION 2
P1-5 J2-5	L SELECT 3	P1-15 J2-15	L ACK	P1-25 J2-25	L DATA 4	P1-35 J2-35	L CLEAR	P1-45 J2-45	L ATTENTION 2
P1-6 J2-6	H SELECT 3	P1-16 J2-16	H ACK	P1-26 J2-26	H DATA 4	P1-36 J2-36	H CLEAR	P1-46 J2-46	H ATTENTION 3
P1-7 J2-7	L SELECT 4	P1-17 J2-17	L PAR	P1-27 J2-27	L DATA 3	P1-37 J2-37	L LAST CHARACTER	P1-47 J2-47	L ATTENTION 3
P1-8 J2-8	H SELECT 4	P1-18 J2-18	H PAR	P1-28 J2-28	H DATA 3	P1-38 J2-38	H LAST CHARACTER	P1-48 J2-48	H ATTENTION 4
P1-9 J2-9	L OUTPUT REQ	P1-19 J2-19	L DATA 7	P1-29 J2-29	L DATA 2	P1-39 J2-39	GROUND	P1-49 J2-49	L ATTENTION 4
P1-10 J2-10	H OUTPUT REQ	P1-20 J2-20	H DATA 7	P1-30 J2-30	H DATA 2	P1-40 J2-40	GROUND	P1-50 J2-50	NOT USED

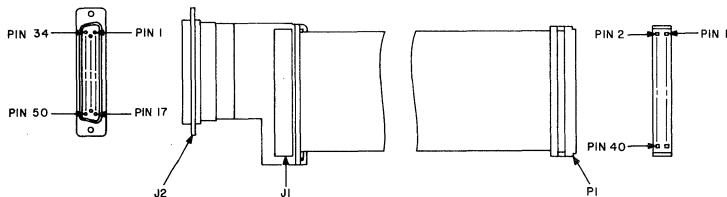
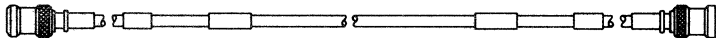


Figure 7-8. Internal 8-Bit Cable Assembly 2818819

PART NO.	LENGTH	'X' OHMS*
2820374-00	3.05 m (10 ft)	1.5
↑ -01	7.62 m (25 ft)	3.5
-02	15.24 m (50 ft)	7.0
-03	22.86 m (75 ft)	10.5
-04	30.48 m (100 ft)	14.0
-05	76.20 m (250 ft)	35.0
-06	152.40 m (500 ft)	70.0
-07	228.60 m (750 ft)	105.0
↓ -08	304.80 m (1000 ft)	140.0
2820374-09	609.60 m (2000 ft)	280.0



*CONTINUITY BETWEEN ELECTRICALLY
COMMON POINTS MUST BE LESS THAN
'X' OHMS RESISTANCE.

59222

Figure 7-9. Coax Cable Assembly 2820374

PART NO.	LENGTH
2822139-00	1.52 m (5 ft)
↑ -01	3.05 m (10 ft)
-02	4.57 m (15 ft)
-03	6.10 m (20 ft)
-04	7.62 m (25 ft)
-05	9.14 m (30 ft)
-06	10.67 m (35 ft)
-07	12.19 m (40 ft)
-08	13.72 m (45 ft)
↓ 2822139-09	15.24 m (50 ft)

P1-1	FRAME
P2-1	GROUND
P1-14	RING
P2-22	IND.
P1-2	TRANSMIT
P2-2	DATA
P1-15	TRANSMIT
P2-13	DATA(REF.)
P1-3	RECEIVE
P2-3	DATA
P1-16	RECEIVE
P2-7	DATA(REF.)
P1-4	REQUEST
P2-4	TO SEND
P1-17	REQUEST TO
P2-11	SEND(REF.)
P1-5	CLEAR
P2-5	TO SEND

P1-18	SIGNAL
P2-7	GROUND
P1-19	DATA TERM.
P2-20	READY
P1-7	TRANSMIT
P2-15	CLOCK
P1-20	TRANSMIT
P2-7	CLOCK(REF.)
P1-6	RECEIVE
P2-17	CLOCK
P1-21	RECEIVE
P2-7	CLOCK(REF.)
P1-10	DATA SET
P2-6	READY
P1-23	DATA SET
P2-7	READY(REF.)

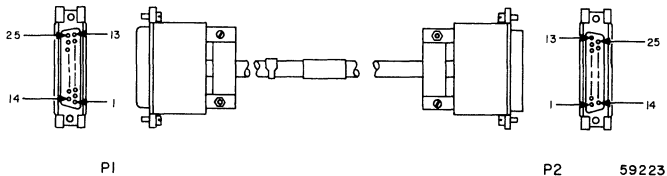


Figure 7-10. Terminal to Modem Cable Assembly 2822139

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COMPANY CONFIDENTIAL

PART NO.	LENGTH
2822140-00	1.52 m (5 ft)
↑ -01	3.05 m (10 ft)
-02	4.57 m (15 ft)
-03	6.10 m (20 ft)
-04	7.62 m (25 ft)
-05	9.14 m (30 ft)
-06	10.67 m (35 ft)
-07	12.19 m (40 ft)
↓ -08	13.72 m (45 ft)
2822140-09	15.24 m (50 ft)

P1-1	FRAME
P2-1	GROUND
P1-14	RING
P2-22	IND.
P1-2	TRANSMIT
P2-2	DATA
P1-15	TRANSMIT
P2-13	DATA(REF.)
P1-5	RECEIVE
P2-3	DATA
P1-16	RECEIVE
P2-7	DATA(REF.)
P1-4	REQUEST
P2-4	TO SEND
P1-17	REQUEST TO
P2-11	SEND(REF.)
P1-5	CLEAR
P2-5	TO SEND

P1-18	SIGNAL
P2-7	GROUND
P1-19	DATA TERM.
P2-20	READY
P1-7	TRANSMIT
P2-15	CLOCK
P1-20	TRANSMIT
P2-7	CLOCK(REF.)
P1-8	RECEIVE
P2-17	CLOCK
P1-21	RECEIVE
P2-7	CLOCK(REF.)
P1-10	CLEAR TO SEND
P2-6	(B)/CARRIER ON
P1-23	CLEAR TO
P2-7	SEND(B)(REF.)

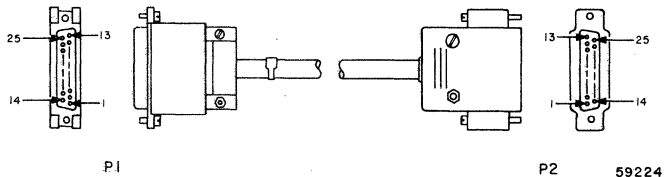


Figure 7-11. Terminal to Modem Cable Assembly (P2 Metric Connection) 2822140

MR6280

PART NO.	LENGTH	PART NO.	LENGTH
2820468-00	1.52 m (5 ft)	2820468-18	28.95 m (95 ft)
-01	3.05 m (10 ft)	-19	30.48 m (100 ft)
-02	4.57 m (15 ft)	-20	33.56 m (110 ft)
-03	6.10 m (20 ft)	-21	36.58 m (120 ft)
-04	7.62 m (25 ft)	-22	39.62 m (130 ft)
-05	9.14 m (30 ft)	-23	42.67 m (140 ft)
-06	10.67 m (35 ft)	-24	45.72 m (150 ft)
-07	12.19 m (40 ft)	-25	48.77 m (160 ft)
-08	13.72 m (45 ft)	-26	51.81 m (170 ft)
-09	15.24 m (50 ft)	-27	54.86 m (180 ft)
-10	16.76 m (55 ft)	-28	57.91 m (190 ft)
-11	18.29 m (60 ft)	-29	60.96 m (200 ft)
-12	19.81 m (65 ft)	-30	67.05 m (220 ft)
-13	21.34 m (70 ft)	-31	73.15 m (240 ft)
-14	22.86 m (75 ft)	-32	79.25 m (260 ft)
-15	24.38 m (80 ft)	-33	85.34 m (280 ft)
-16	25.91 m (85 ft)	-34	91.44 m (300 ft)
2820468-17	27.43 m (90 ft)	2820468-35	0.91 m (3 ft)

P1-1	FRAME	P1-6	DATA SET
P2-1	GROUND	P2-6	READY
P1-14	RING	P1-19	DATA TERM.
P2-22	IND.	P2-20	READY
P1-2	TRANSMIT	P1-7	TRANSMIT
P2-2	DATA	P2-15	CLOCK
P1-15	TRANSMIT	P1-20	TRANSMIT
P2-13	DATA(REF.)	P2-7	CLOCK(REF.)
P1-3	RECEIVE	P1-8	RECEIVE
P2-3	DATA	P2-17	CLOCK
P1-16	RECEIVE	P1-21	RECEIVE
P2-7	DATA(REF.)	P2-7	CLOCK(REF.)
P1-4	REQUEST	P1-9	REQUEST TO
P2-4	TO SEND	P2-18	SEND(B)
P1-17	REQUEST TO	P1-22	REQUEST TO
P2-11	SEND(REF.)	P2-19	SEND(B)(REF.)
P1-5	CLEAR	P1-10	CLEAR TO SEND
P2-5	TO SEND	P2-8	(B)/CARRIER ON
P1-18	SIGNAL	P1-12	CLEAR TO
P2-7	GROUND	P2-7	SEND(B)(REF.)

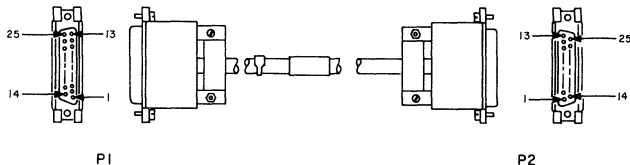
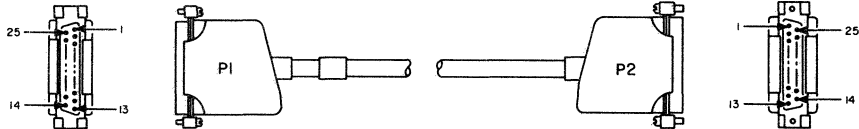


Figure 7-12. External I/O Cable Assembly 2820468

PART NO.	LENGTH
2823706-00	4.57 m (15 ft)
↑	
-01	6.10 m (20 ft)
-02	7.62 m (25 ft)
-03	9.14 m (30 ft)
-04	10.67 m (35 ft)
-05	12.19 m (40 ft)
↓	
-06	13.72 m (45 ft)
2823706-07	15.24 m (50 ft)

P1-1	FRAME
P2-1	GROUND
P1-2	RECEIVE
P2-3	DATA
P1-7	RECEIVE
P2-16	DATA (REF)
P1-3	TRANSMIT
P2-2	DATA
P1-7	TRANSMIT
P2-15	DATA (REF)
P1-4	JUMPER
P1-5	
P2-4	JUMPER
P2-5	

P1-6	DATA TERM
P1-8	READY
P2-19	
P1-7	SIGNAL
P2-18	GROUND
P2-20	
P2-21	
P1-15	RECEIVE
P2-8	CLOCK
P1-17	TRANSMIT
P2-7	CLOCK
P1-20	CARRIER
P2-6	DETECT
P2-10	



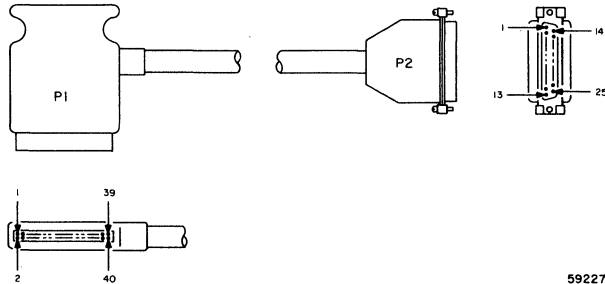
59226

Figure 7-13. Scanner I/MCC Direct Connect Cable Assembly 2823706

P1-12	RECEIVE
P2-2	DATA
P1-13	RECEIVE
P2-15	DATA (REF)
P1-1	FRAME
P2-1	GROUND
P1-26	JUMPER
P1-16	
P1-4	JUMPER
P1-24	
P1-24	JUMPER
P1-10	

P1-14	RECEIVE
P2-7	CLOCK
P1-15	RECEIVE
P2-20	CLOCK (REF)
P1-18	TRANSMIT
P2-3	DATA
P1-19	TRANSMIT
P2-16	DATA (REF)
P1-8	TRANSMIT
P2-8	CLOCK
P1-9	TRANSMIT
P2-21	CLOCK (REF)

CABLE LENGTH 15.24 m (50FT)



59227

Figure 7-14. DCP 20/40 Direct Connect Cable Assembly 2824691

59228

P1-14	RECEIVE
P2-7	CLOCK
P1-15	RECEIVE
P2-20	CLOCK (REF)
P1-18	TRANSMIT
P2-3	DATA
P1-19	TRANSMIT
P2-16	DATA (REF)
P1-8	TRANSMIT
P2-8	CLOCK
P1-9	TRANSMIT
P2-21	CLOCK (REF)

P1-12	RECEIVE
P2-2	DATA
P1-13	RECEIVE
P2-15	DATA (REF)
P1-1	FRAME
P2-1	GROUND
P1-26	JUMPER
P1-16	
P1-4	JUMPER
P1-24	
P1-24	JUMPER
P1-10	

CABLE LENGTH 15.24 m (50 FT)

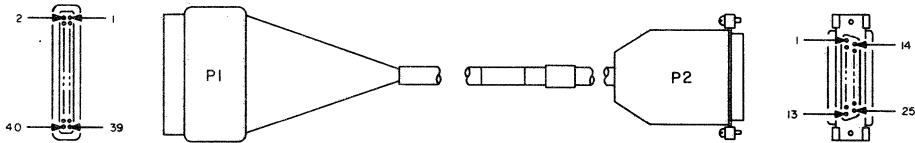


Figure 7-15. Scanner IIE/CA Direct Connect Cable Assembly 2814087

PART NO.	LENGTH
6432694-00	5 m (16.42 ft)
↑ -01	10 m (32.84 ft)
-02	15 m (49.26 ft)
↓ -03	20 m (65.68 ft)
-04	25 m (82.10 ft)
6432694-05	30 m (98.52 ft)

P1-1	FRAME
P2-1	GROUND
P1-3	TRANSMIT
P2-3	DATA
P1-4	TRANSMIT
P2-16	DATA (REF)
P1-5	RECEIVE
P2-2	DATA
P1-15	RECEIVE
P2-8	CLOCK
P1-16	RECEIVE
P2-21	CLOCK (REF)
P1-17	TRANSMIT
P2-7	CLOCK
P1-18	TRANSMIT
P2-20	CLOCK (REF)

P1-7	JUMPER
P1-9	
P1-11	JUMPER
P1-19	
P1-2	SIGNAL GROUND
P1-6	
P1-8	
P1-10	
P1-12	
P1-13	
P1-14	
P1-20	
P1-21	
P1-22	
P1-23	
P1-24	
P1-27	
P1-28	
P2-18	

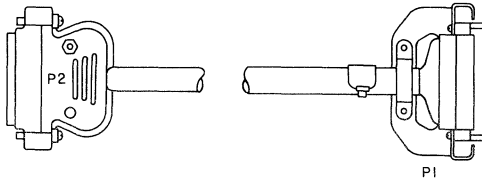
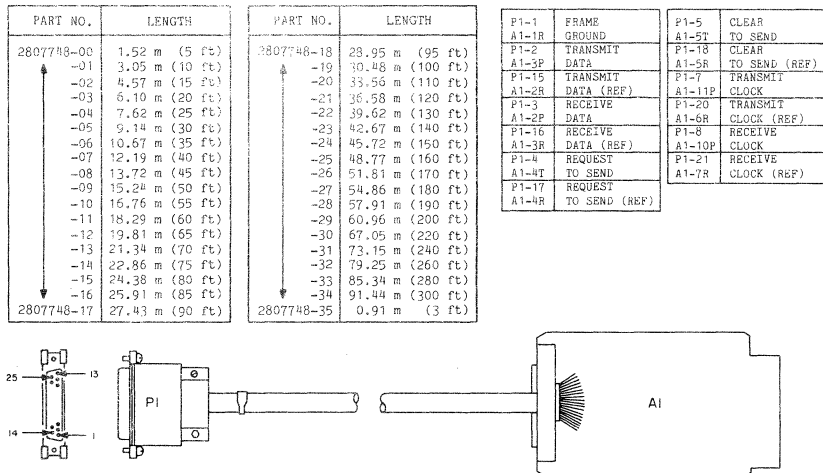


Figure 7-16. GCS Direct Connect Cable Assembly 6432694

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COMPANY CONFIDENTIAL



59230

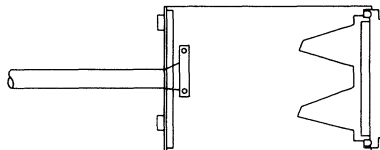
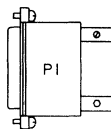
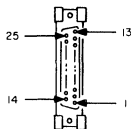
Figure 7-17. CTMC Direct Connect Cable Assembly 2807748

MR6280

PART NO.	LENGTH
2807867-00	1.52 m (5 ft)
↑	
-01	3.05 m (10 ft)
-02	4.57 m (15 ft)
-03	6.10 m (20 ft)
-04	7.62 m (25 ft)
-05	9.14 m (30 ft)
-06	10.67 m (35 ft)
-07	12.19 m (40 ft)
-08	13.72 m (45 ft)
↓	
2807867-09	15.24 m (50 ft)

P1-1	FRAME
A1-55	GROUND
P1-2	TRANSMIT
E230	DATA
P1-15	TRANSMIT
SHIELD	DATA (REF)
P1-3	RECEIVE
E209	DATA
P1-16	RECEIVE
SHIELD	DATA (REF)
P1-4	REQUEST
E103	TO SEND
P1-17	REQUEST
SHIELD	TO SEND (REF)

P1-5	CLEAR
W46	TO SEND
P1-18	CLEAR
SHIELD	TO SEND (REF)
P1-7	TRANSMIT
E233	CLOCK
P1-20	TRANSMIT
SHIELD	CLOCK (REF)
P1-8	RECEIVE
E227	CLOCK
P1-21	RECEIVE
SHIELD	CLOCK (REF)

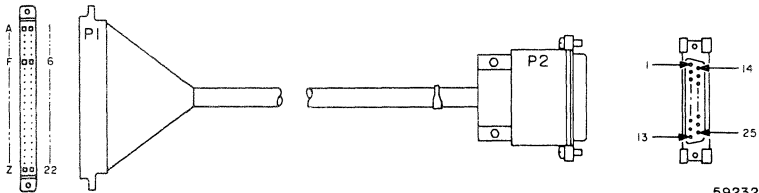


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59231

Figure 7-18. DCS/LTC Direct Connect Cable Assembly 2807867

CABLE LENGTH 15.24m (50FT)

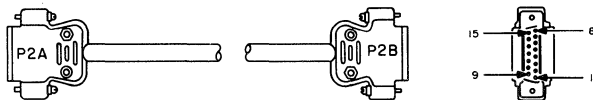


P1-17	RECEIVE
P2-7	CLOCK
P1-U	RECEIVE
P2-20	CLOCK (REF)
P1-2	TRANSMIT
P2-3	DATA
P1-B	TRANSMIT
P2-16	DATA (REF)
P1-15	TRANSMIT
P2-8	CLOCK
P1-S	TRANSMIT
P2-21	CLOCK (REF)

P1-3	RECEIVE
P2-2	DATA
P1-C	RECEIVE
P2-15	DATA (REF)
P1-1	GROUND
P2-1	
P1-4	JUMPER
P1-5	
P1-8	JUMPER
P1-20	
P1-21	JUMPER

Figure 7-19. CSP Direct Connect Cable Assembly 2811650

PART NO.	LENGTH	PART NO.	LENGTH	P2A-1 P2B-1	SHIELD	P2A-6 P2B-5	TRANSMIT/ RECEIVE DATA
2871358-00	1.52 m (5 ft)	2871358-18	28.95 m (95 ft)	P2A-2	TRANSMIT/	P2A-7	TRANSMIT/
-01	3.05 m (10 ft)	-19	30.48 m (100 ft)	P2B-8	RECEIVE DATA	P2B-4	RECEIVE CLOCK
-02	4.57 m (15 ft)	-20	33.56 m (110 ft)	P2A-3	TRANSMIT/	P2A-8	TRANSMIT/
-03	6.10 m (20 ft)	-21	36.58 m (120 ft)	P2B-11	RECEIVE CLOCK	P2B-2	RECEIVE DATA
-04	7.62 m (25 ft)	-22	39.62 m (130 ft)	P2A-4	TRANSMIT/	P2A-11	TRANSMIT/
-05	9.14 m (30 ft)	-23	42.67 m (140 ft)	P2B-7	RECEIVE CLOCK	P2B-3	RECEIVE CLOCK
-06	10.67 m (35 ft)	-24	45.72 m (150 ft)	P2A-5	TRANSMIT/		
-07	12.19 m (40 ft)	-25	48.77 m (160 ft)	P2B-6	RECEIVE DATA		
-08	13.72 m (45 ft)	-26	51.81 m (170 ft)				
-09	15.24 m (50 ft)	-27	54.86 m (180 ft)				
-10	16.76 m (55 ft)	-28	57.91 m (190 ft)				
-11	18.29 m (60 ft)	-29	60.96 m (200 ft)				
-12	19.81 m (65 ft)	-30	67.05 m (220 ft)				
-13	21.34 m (70 ft)	-31	73.15 m (240 ft)				
-14	22.86 m (75 ft)	-32	79.25 m (260 ft)				
-15	24.38 m (80 ft)	-33	85.34 m (280 ft)				
-16	25.91 m (85 ft)	2871358-34	91.44 m (300 ft)				
2871358-17	27.43 m (90 ft)						

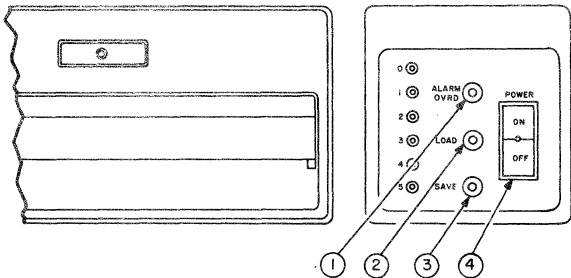


59233

Figure 7-20. DCM Interconnecting Cable Assembly 2871358

SECTION 8

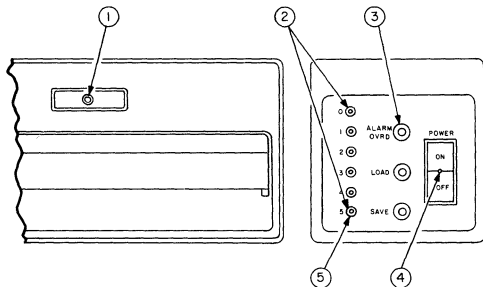
CONTROLS AND INDICATORS



- | | | |
|---|------------|---|
| ① | ALARM OVRD | Provides manual override of the early-warning-over-temperature audible alarm. |
| ② | LOAD | Clears cluster controller electronics and initiates POC test. |
| ③ | SAVE | Initiates system dump routine. |
| ④ | POWER | Provides circuit breaker protected ac power to the cluster controller. |

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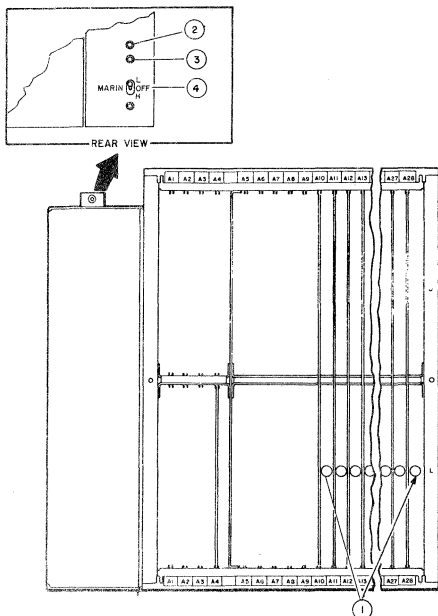
Figure 8-1. Panel Controls



- | | |
|--------------------|--|
| ① HEAD LOAD | Indicates ILD is being accessed. |
| ② ERROR INDICATORS | Provides error stop code when an error is detected during POC test or normal operation. |
| ③ ALARM OVRD | Indicates the early-warning-overtemperature audible alarm has been disabled. |
| ④ POWER | Indicates ac power is applied. |
| ⑤ POLL | Indicates communications line activity (polling) when flashing. (Dual purpose LED - refer to item 2) |

59235

Figure 8-2. Panel Indicators



- ① POC Indicators* Indicator illuminated upon successful completion of the line module's POC.
- ② MARGIN ON Indicator Indicator illuminated whenever MARGIN switch is in either the high or low position.
- ③ DC ON Indicator Indicator illuminated when dc voltage is applied.
- ④ MARGIN Switch Changes the dc voltage $\pm 5\%$ for use in fault isolation of intermittent or voltage related problems.

*The ILD will POC when the LOAD or SAVE switch is pressed. All other line modules require a command from Soft POC to execute their individual POCs. 59236

Figure 8-3. Internal Controls and Indicators

SECTION 9

SOFTWARE AND MICROCODE INFORMATION

CONTROL CHARACTERS		DATA CHARACTERS								HEXADECIMAL					
		64 CHARACTERS (UPPERCASE)				32 CHARACTERS (LOWERCASE)									
		0	1	2	3	4	5	6	7	← LEFT DIGIT					RIGHT DIGIT →
MS	0	0	0	0	1	1	1	1	7	BINARY BIT NUMBER					↓
	0	0	1	1	0	0	1	1	6						
	0	1	0	1	0	1	0	1	5						
										4	3	2	1		
	NUL	DLE	(SP)	O	@	(P)	\	(P)		0	0	0	0	0	
	SOH	DC1	!	1	A	Q	a	q		0	0	0	1	1	
	STX	DC2	"	2	B	R	b	r		0	0	1	0	2	
	ETX	DC3	#	3	C	S	c	s		0	0	1	1	3	
	EOT	DC4	\$	4	D	T	d	t		0	1	0	0	4	
	ENQ	NAK	%	5	E	U	e	u		0	1	0	1	5	
	ACK	SYN	&	6	F	V	f	v		0	1	1	0	6	
	BEL	ETB	'	7	G	W	g	w		0	1	1	1	7	
	BS	CAN	(	8	H	X	h	x		1	0	0	0	8	
	HT	EM	)	9	I	Y	i	y		1	0	0	1	9	
	LF	SUB	*	:	J	Z	j	z		1	0	1	0	A	
	VT	ESC	+	;	K	[	k	{		1	0	1	1	B	
	FF	FS	<	,	L	\	l	;		1	1	0	0	C	
	CR	GS	-	=	M	]	m	}		1	1	0	1	D	
	SO	RS	.	>	N	^	n	~		1	1	1	0	E	
	SI	US	/	?	O	_	o	//		1	1	1	1	F	

LS

NOTES:

- 1. Octal codes appear in the square with each character.
- 2. General identifier (GID) characters are circled.
- 3. MS = most significant, LS = least significant.
- 4. The // symbol (column 7, octal code 177) is the UTS 4000 symbol for the ASCII delete character (DEL).
- 5. Examples:

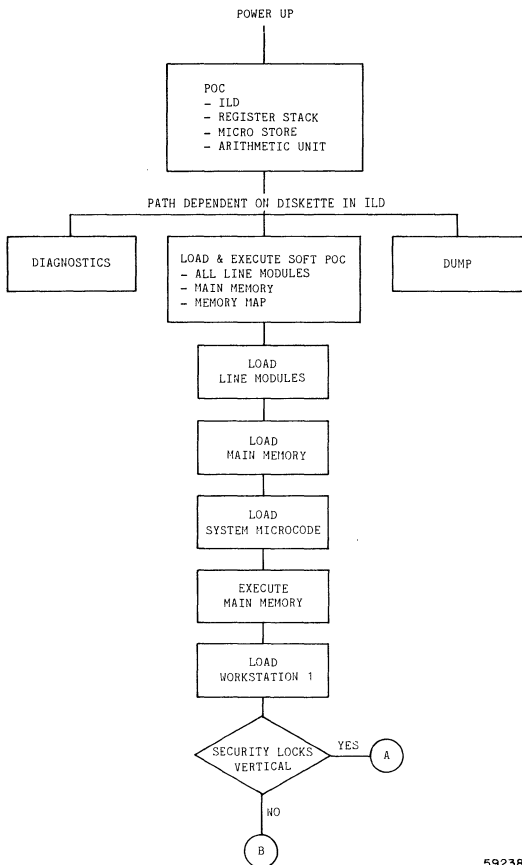
A. For the dollar sign character (\$), the octal code is 044, the hexadecimal code is 24, and the binary code is 0 1 0 0 1 0 0.
7 6 5 4 3 2 1 ← BIT NUMBER

B. Hexadecimal code 6E is for the lowercase (n) character.
left digit → right digit

The octal code is 156, and the binary code is 1 1 0 1 1 1 0.
MS → ← LS

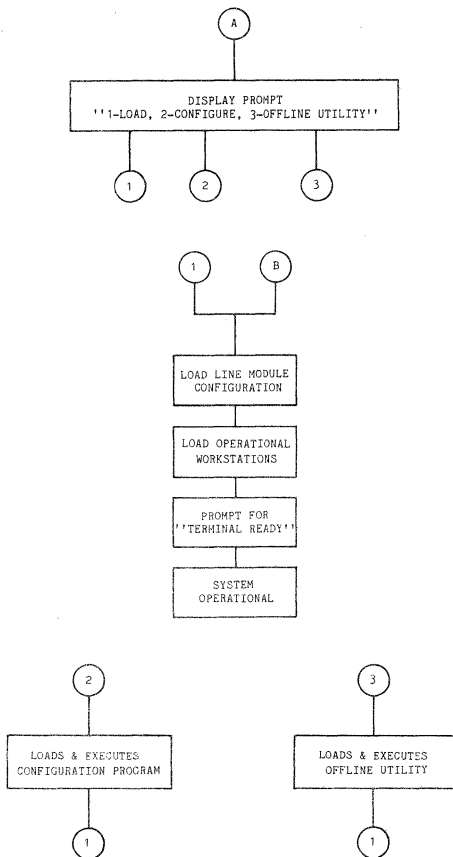
59237

Figure 9-1. ASCII Code Table



59238

Figure 9-2. System Start-up (Sheet 1 of 2)



59239

Figure 9-2. System Start-up (Sheet 2 of 2)

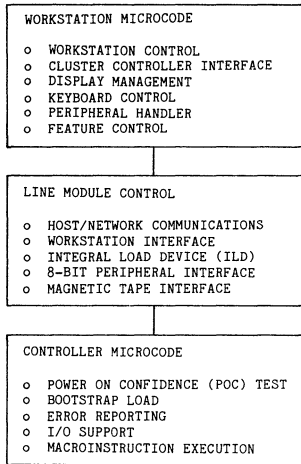


Figure 9-3. Microcode Components

SUPERVISOR

- o LOAD & INITIALIZATION
- o TASK MANAGEMENT
- o USER PROGRAM/UTILITY LOAD
- o BUFFER & MEMORY MANAGEMENT
- o I/O CONTROL
- o SUPERVISOR (SVR) HANDLER
- o SYSTEM SUBROUTINES

RESOURCE MANAGEMENT

- o FILE MANAGEMENT
 - PROCESSES PERIPHERAL RELATED SVRS
 - OPEN/CLOSE
 - POSITION
 - READ/WRITE/REWRITE
 - PRINT LINE
 - PRINT CONTROL
 - READ/WRITE SECTOR
 - PREP
 - SEARCH
 - HANDLES TCS AND IBM FORMATTED DISKETTES
 - PROVIDES SEQUENTIAL/RELATIVE/INDEXED ACCESS METHODS
 - WILL BE EXPANDED FOR TAPE
 - CONTROLS USER PROGRAM ACCESS TO SCREEN/KEYBOARD/HOST
- o CONTROL PAGE HANDLER
 - DEVICE ASSIGNMENT
 - UTS 400 EMULATION
 - HANDLES COPY, DISKETTE PREP, ETC.
- o DEVICE HANDLERS
 - PRINTERS
 - DISKETTE
 - TAPE
 - INTEGRAL LOAD DEVICE

COMMUNICATIONS MANAGEMENT

- o UTS 4000 BYTE COMMUNICATIONS
 - INTERFACES TO COMMUNICATIONS LINE MODULE
 - ROUTES DATA TO WORKSTATIONS OR USER PROGRAMS
- o WORKSTATION HANDLER
 - INTERFACES TO WORKSTATION LINE MODULE
 - ROUTES DATA TO
 - FILE MANAGEMENT
 - CONTROL PAGE HANDLER
 - HOST

Figure 9-4. Operating System Components (Sheet 1 of 2)

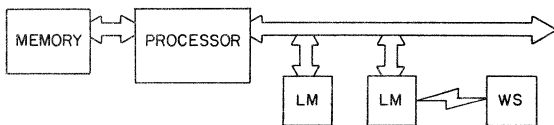
UTILITIES

- o CONFIGURATOR
 - OFFLINE PROGRAM
 - ENTERED AT SYSTEM START-UP
 - USES PROMPTS TO ASSEMBLE CONFIGURATION
 - ASSEMBLES TABLES ON DISKETTE
- o OFFLINE DISKETTE UTILITIES
 - PRIMARILY USED FOR SYSTEM DISKETTE MAINTENANCE
 - PREPARATION OF BACKUP COPIES OF RELEASE DISKETTES
 - ADDING UNIVAC SUPPLIED APPLICATION PACKAGES TO A RELEASE DISKETTE
 - CAPABILITY FOR ADDING CORRECTIONS TO SYSTEM SOFTWARE
 - PREPARATION OF DUMP DISKETTES
- o SYSTEM FILE UTILITY
 - DISKETTE PREP
 - FORMAT CONVERSIONS
 - FILE COPY/PRINT
 - FILE BACKUP
 - FILE MAINTENANCE
 - CREATE
 - DELETE
 - MODIFY
- o DUMP PRINT
 - PRINTS CONTENTS OF DUMP DISKETTE
 - INCLUDES
 - REGISTER STACK
 - MEMORY MAP
 - COMMUNICATIONS LINE MODULE
 - 8-BIT LINE MODULES
 - WORKSTATION LINE MODULES
 - MAIN MEMORY

USER APPLICATIONS

- o USER PROGRAMS ONLY IN COBOL
- o EDIT PROCESSOR
- o INTERACTIVE PROGRAM GENERATOR

Figure 9-4. Operating System Components (Sheet 2 of 2)



FUNCTIONAL PARTITIONING

- o LINE MODULES (LM)
 - PROTOCOL DETAILS (POLLING, CRC, ETC.)
 - CHARACTER-BY-CHARACTER PROCESSING
 - ERROR RECOVERY/RETRANSMISSION
- o PROCESSOR
 - MESSAGE FORMATTING
 - HIGHER LEVEL PROTOCOL FUNCTIONS (ROUTING, ETC.)
 - APPLICATIONS SUPPORT
- o WORKSTATIONS (WS)
 - CHARACTER-BY-CHARACTER PROCESSING
 - SCREEN EDITING
 - KEYBOARD CONTROL

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Figure 9-5. System Software Functional Partitioning

COMMUNICATIONS CONTROL SEQUENCES

<u>DEFINITION</u>	<u>CODE</u>
NO TRAFFIC	EOT EOT
REPLY REQUEST	DLE ENQ
RETRANSMISSION REQUEST	DLE NAK
ACKNOWLEDGMENT	DLE 1
TEXT AVAILABLE FROM STATION	DLE 0
LINE DISCONNECTION	DLE EOT
BUSY(WABT)	DLE ?
THRU	DLE ;
MESSAGE QUEUED	DLE 4
PERIPHERAL DEVICE SELECTION DELAYED	DLE 5
POWER-ON CONFIDENCE (POC) TEST JUST COMPLETED SUCCESSFULLY	DLE 6
DEVICE READY	DLE <
UNABLE TO PROCEED	DLE >
TIMING ERROR	DLE :
NO RESPONSE	DLE =

Figure 9-6. Communications Control Sequences

FUNCTION	CODE
CURSOR POSITIONING	ESC VT Y X SI
SOE POSITION	ESC VT Y X NUL SI
START OF ENTRY (SOE)	RS
CURSOR RETURN (NEW LINE)	CR
CURSOR TO HOME	ESC e
SEND CURSOR ADDRESS	ESC T
ERASE UNPROTECTED DATA	ESC a
ERASE TO END OF LINE	ESC b
ERASE TO END OF FIELD	ESC K
ERASE DISPLAY	ESC M
ERASE CHARACTER (SPACE)	SP
DELETE IN LINE	ESC c
DELETE IN DISPLAY	ESC C
DELETE LINE	ESC k
INSERT IN LINE	ESC d
INSERT IN DISPLAY	ESC D
INSERT LINE	ESC j
LINE DUPLICATION	ESC y
SCAN UP	ESC f
SCAN LEFT	ESC g
SCAN RIGHT	ESC h
SCAN DOWN	ESC i
FORWARD TAB	HT
TAB STOP SET	ESC HT
BACKWARD TAB	ESC z
TRANSFER CHANGED	ESC E
TRANSFER VARIABLE	ESC F
TRANSFER ALL	ESC G
PRINT FORM	ESC H
PRINT	DC2
PRINT TRANSPARENT	ESC DC2

Figure 9-7. Station and Peripheral Device Control Codes
(Sheet 1 of 2)

<u>FUNCTION</u>	<u>CODE</u>
TRANSMIT VARIABLE	DC1
TRANSMIT ALL	ESC DC1
TRANSMIT CHANGED	ESC t
CLEAR CHANGED	ESC u
CALL ERROR LOG	ESC P
CLEAR ERROR LOG	ESC R
INITIATE CONFIDENCE TEST	ESC Q
BLINKING START MARKER	FS
BLINKING END MARKER	GS
LOCK KEYBOARD	DC4 OR ESC DC4
SHIFT IN	SI
SHIFT OUT	SO
LINE FEED	LF
FORM FEED	FF
FCC CHARACTER SEQUENCE	US R C M N
FCC CHARACTER CLEAR	ESC w

Figure 9-7. Station and Peripheral Device Control Codes
(Sheet 2 of 2)

TEXT US R C M N TEXT

FCC SEQUENCE IMBEDDED IN TEXT MESSAGE

- US THIS CONTROL CHARACTER IS USED TO IDENTIFY AN FCC SEQUENCE.
- R THIS CONTROL CHARACTER IDENTIFIES THE ROW NUMBER IN WHICH THE FCC IS TO BE PLACED.
- C THIS CONTROL CHARACTER IDENTIFIES THE COLUMN NUMBER IN WHICH THE FCC IS TO BE PLACED.
- M THIS ASCII CHARACTER IS PLACED IN THE SEQUENCE TO DEFINE THE STATE OF BITS 4, 5, 6, AND 7 OF THE FCC.
- N THIS ASCII CHARACTER IS PLACED IN THE SEQUENCE TO DEFINE THE STATE OF BITS 0, 1, 2, AND 3 OF THE FCC. IT SHOULD BE NOTED THAT BIT 3 IS USED EXCLUSIVELY BY THE MICROCODE AND WILL ALWAYS BE SET.

Figure 9-8. Host Format of FCC Sequence (Sheet 1 of 2)

ASCII CHARACTERS USED AS M IN THE FCC SEQUENCE

CHAR- ACTER	HEX. CODE	FIELD CHARACTERISTICS
0	30	TAB STOP, NORMAL INTENSITY, CHANGED FIELD
1	31	TAB STOP, OFF (NO INTENSITY), CHANGED FIELD
2	32	TAB STOP, LOW INTENSITY/REVERSE VIDEO, CHANGED FIELD
3	33	TAB STOP, BLINKING INTENSITY, CHANGED FIELD
4	34	TAB STOP, NORMAL INTENSITY
5	35	TAB STOP, OFF (NO INTENSITY)
6	36	TAB STOP, LOW INTENSITY/REVERSE VIDEO
7	37	TAB STOP, BLINKING INTENSITY
8	38	NOT TAB STOP, NORMAL INTENSITY, CHANGED FIELD
9	39	NOT TAB STOP, OFF (NO INTENSITY), CHANGED FIELD
:	3A	NOT TAB STOP, LOW INTENSITY/REVERSE VIDEO, CHANGED FIELD
;	3B	NOT TAB STOP, BLINKING INTENSITY, CHANGED FIELD
<	3C	NOT TAB STOP, NORMAL INTENSITY
-	3D	NOT TAB STOP, OFF (NO INTENSITY)
>	3E	NOT TAB STOP, LOW INTENSITY/REVERSE VIDEO
?	3F	NOT TAB STOP, BLINKING INTENSITY

ASCII CHARACTERS USED AS N IN THE FCC SEQUENCE

CHAR- ACTER	HEX. CODE	FIELD CHARACTERISTICS
0	30	ANY INPUT ALLOWED
1	31	ALPHA ONLY ALLOWED
2	32	NUMERIC ONLY ALLOWED
3	33	PROTECTED (NO ENTRIES AND NO CHANGES ALLOWED)
4	34	ANY INPUT ALLOWED, RIGHT-JUSTIFIED
5	35	ALPHA ONLY ALLOWED, RIGHT-JUSTIFIED
6	36	NUMERIC ONLY ALLOWED, RIGHT-JUSTIFIED
7	37	PROTECTED (NO RIGHT-JUSTIFY; BIT 2 IGNORED)

Figure 9-8. Host Format of FCC Sequence (Sheet 2 of 2)

THE SYSTEM CONFIGURATION UTILITY HAS TWO PRIMARY FUNCTIONS:

- o ASSEMBLES THE SYSTEM CONFIGURATION TABLES
- o MODIFYING EXISTING TABLES

THE SYSTEM CONFIGURATION UTILITY IS:

- o CONTAINED ON THE SYSTEM DISKETTE
- o PERFORMED FROM THE MASTER WORKSTATION
 - SETUP KEYLOCK NOT LOCKED (VERTICAL POSITION)
 - KYBD LOCK KEYLOCK NOT LOCKED (VERTICAL POSITION)
- o INDEPENDENT OF OTHER SYSTEM SOFTWARE (CANNOT BE ACTIVE CONCURRENT WITH OTHER SYSTEM SOFTWARE)
- o DIVIDED INTO FIVE MAJOR SECTIONS
 - SYSTEM PROMPTS
 - HOST COMMUNICATIONS PROMPTS
 - WORKSTATION PROMPTS
 - PRINTER PROMPTS
 - DISKETTE DRIVE PROMPTS

TO ENTER THE CONFIGURATION UTILITY:

1. ENSURE SETUP KEYLOCK IS NOT LOCKED
2. RUN SYSTEM POC
3. SELECT ITEM 2 (CONFIGURE) FROM THE INITIAL PROMPT (I100)
4. PRESS XMIT

TO EXIT THE CONFIGURATION UTILITY:

1. ENSURE THE PROGRAM HAS RETURNED TO THE INITIAL MENU FOR THE UTILITY (C120)
2. PRESS XMIT (SYSTEM ASSEMBLES/MODIFIES THE CONFIGURATION TABLE ON THE SYSTEM DISKETTE)

TO ABORT THE CONFIGURATION UTILITY:*

1. ENSURE THE UTILITY IS WAITING AN OPERATOR RESPONSE
2. PRESS THE F20 KEY AND THEN THE XMIT KEY

*IF THE UTILITY HAS BEEN ABORTED DURING AN ASSEMBLE PROCESS, THE ENTIRE CONFIGURATION PROCESS MUST BE ENTERED AGAIN. IF ABORTED DURING A MODIFY PROCESS, THE CURRENT MODIFICATION IS LOST --- PREVIOUSLY ENTERED MODIFICATIONS ARE ENTERED IN THE CONFIGURATION TABLE.

Figure 9-9. Configuration Utility

SECTION 10

STRAPPING

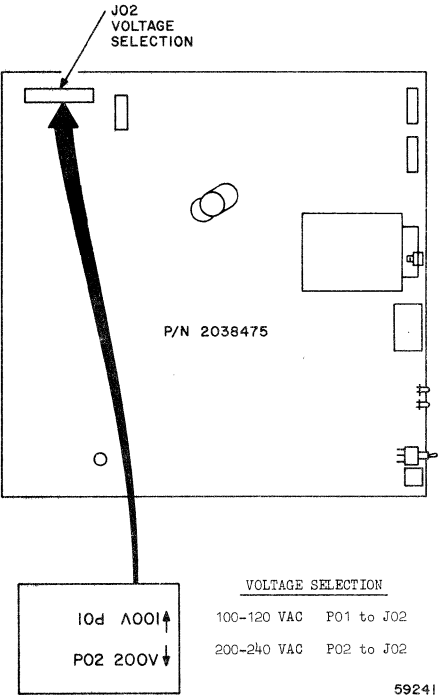
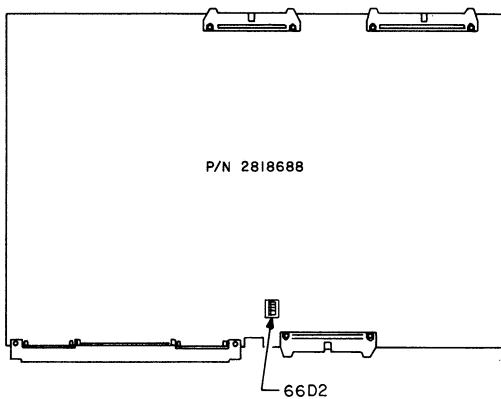


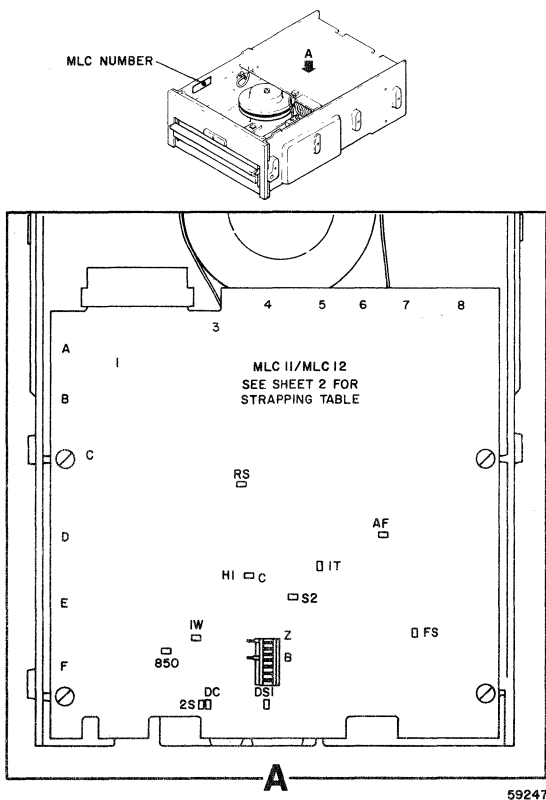
Figure 10-1. AC Voltage Selection Strapping



SWITCH	SETTING
1	OFF
2	OFF
3	OFF
4	ON

59242

Figure 10-2. Loadable Communications Line Module Strapping



59247

Figure 10-3. ILD Strapping Information - MLC11/MLC12 (Sheet 1 of 2)

MLC11 AND MLC12 STRAPPING

Strap	Location	Position
B (shunt)	F 4	Open
Z (shunt)	F 4	Open
DS1	F-G 4	DS1
2S	F-G 4	2S
DC	F-G 3	DC
850	F 2	850
IW	E-F 2.5	IW
S2	E 4.5	S2
HI/C	D-E 3.5	HI to C
IT	D-E 5	IT
FS	E-F 7	FS
AF	D 7	AF
RS	C-D 3.5	RS

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Figure 10-3. ILD Strapping Information - MLC11/MLC12 (Sheet 2 of 2)

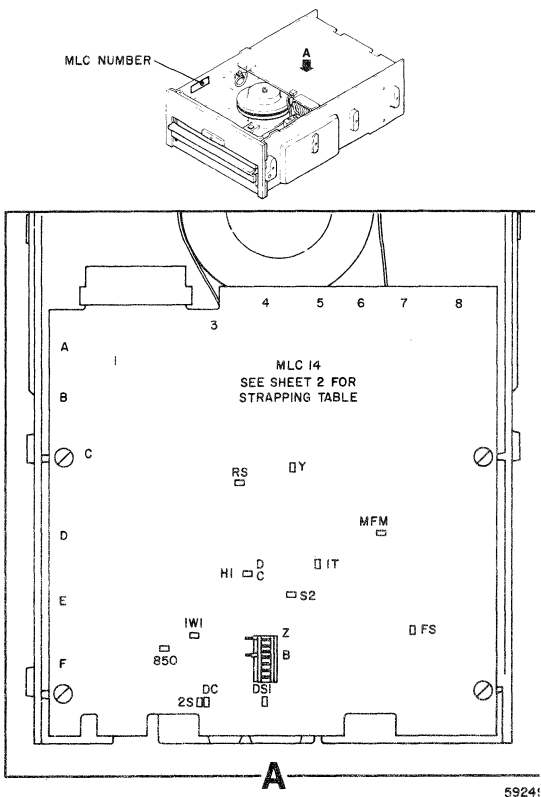


Figure 10-4. ILD Strapping Information - MLC14 (Sheet 1 of 2)

MLC14 STRAPPING

Strap	Location	Position
B (shunt)	F 4	Open
Z (shunt)	F 4	Open
DS1	F-G 4	DS1
2S	F-G 3	2S
DC	F-G 3	DC
850/851	F 2	850
IWI	E-F 2.5	IWI
FS	E-F 7.5	FS
S2	E-D 4.5	S2
HI/C	E-D 3.5	HI to C
IT	E-D 5	IT
MFM	D 6.5	MFM
RS	D-C 3.5	RS
Y	C 4.5	Y

59250

Figure 10-4. ILD Strapping Information - MLC14 (Sheet 2 of 2)

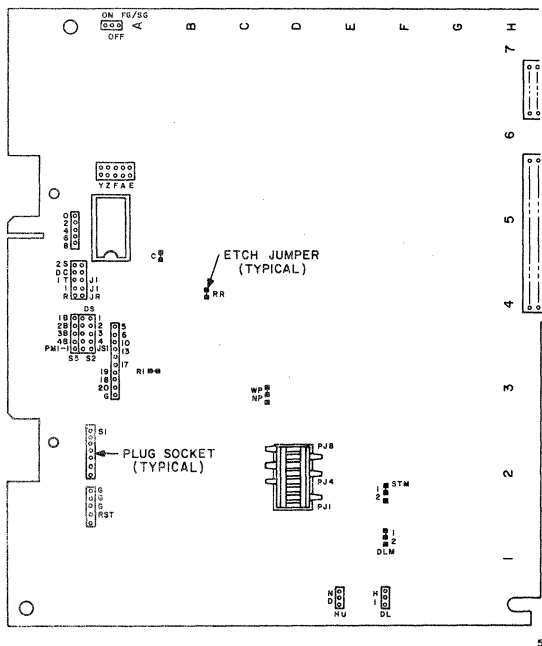


Figure 10-5. ILD Strapping Information - M2894 (Sheet 1 of 2)

JUMPER	LOCATION		FUNCTION
DS-1	A4		DRIVE SELECT 1
R	A4		READY
I	A4		INDEX
2S	A4		TWO SIDED
DC	A4		DISK CHANGE
Y	A7		IN USE LED W/HEAD LOAD
S2	A3		SIDE SELECT
IW	A1		INDEX WRIT
IT	A4		(UNDEFINED)
DLH	E1		DOOR LOCK BY HEAD LOAD
HUN	C1		HEAD UNLOAD DELAY
PM1-2	A5		(UNDEFINED)
ETCH	LOCATION	FOIL	FUNCTION
C	A4	SHORT	(UNDEFINED)
RR	A4	SHORT	RADIAL READY
RI	B3	SHORT	RADIAL INDEX
WP	C3	SHORT	WRITE PROTECT
NP	C3	OPEN	NOT PROTECTED
STM-1	G1	SHORT	STEPPER POWER 1
STM-2	G1	OPEN	STEPPER POWER 2
DLM-1	G1	OPEN	DOOR LOCK 1
DLM-2	G1	SHORT	DOOR LOCK 2
* SF	G1	SHORT	SWITCH FILTER
* NSF	G1	OPEN	NO FILTER
MODE SET SHUNT PLUG/JUMPER (LOCATION D2)			FUNCTION
	IN (9	8) IN	(NONE)
	IN (10	7) OUT	STEPPER POWER
	IN (11	6) IN	HEAD LOAD LATCH
	IN (12	5) OUT	ALT. HEAD LOAD
	IN (13	4) OUT	HEAD LOAD W/SELECT
	IN (14	3) IN	DOOR LOCK LATCH
	IN (15	2) IN	READY
	IN (16	1) IN	(NONE)

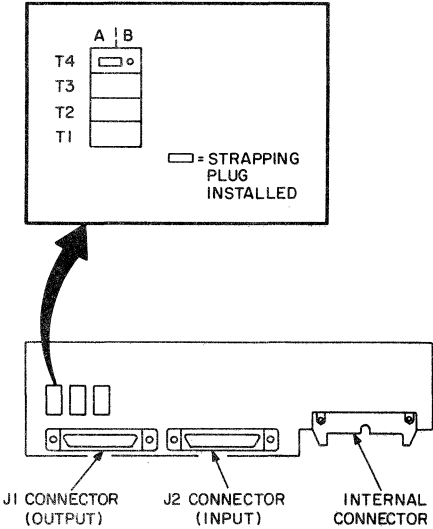
* NOT ON ALL VERSIONS OF PCA.

59252

Figure 10-5. ILD Strapping Information - M2894 (Sheet 2 of 2)

APPENDIX A

PERIPHERAL INFORMATION



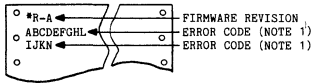
DIAGNOSTIC TEST	STRAP
SLIDING PATTERN	T4A
BACK-TO-BACK*	T4A

* BEGIN TEST. REMOVE THE STRAPPING PLUG FROM STRAPPING LOCATION T4A. TEST RESULTS ARE INTERPRETED THROUGH INFORMATION PROVIDED ON SHEET 2.

59243

Figure A-1. Type 0797 Printer Diagnostic (Sheet 1 of 2)

THE MESSAGE OF BACK-TO-BACK TEST:



(NOTE 1) IF THERE IS NOT ANY ERROR, THESE LINES ARE BLANK.

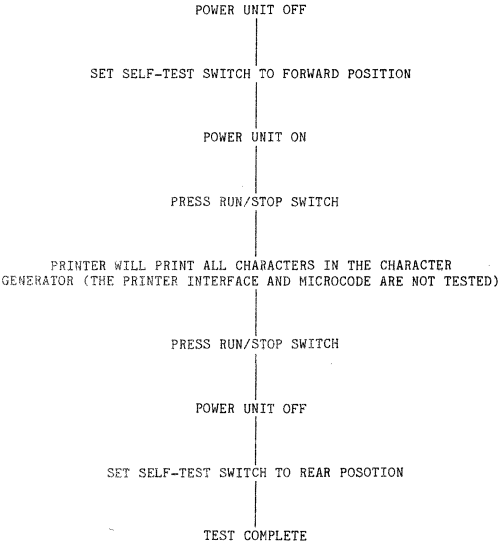
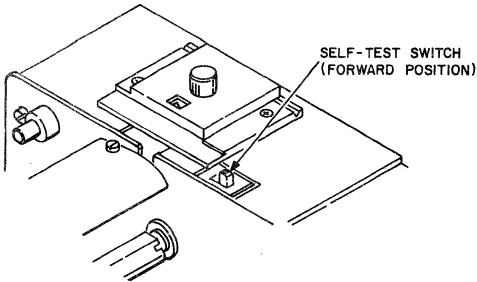
ERROR CODE	ERROR POSITION
A , E	DATA0 ----- DATA4
B , F	DATA1 ----- DATA5
C , G	DATA2 ----- DATA6
D , H	DATA3 ----- DATA7
I	ATTN1 ----- SELECT1
J	INTERRUPT ----- CLEAR
K	INPUT REQ ----- ACK
L	OUTPUT REQ ----- LAST CHARACTER
M	PARITY ----- ACK
N	INPUT REQ ----- PARITY

WIRING TABLE OF THE CONNECTOR FOR BACK-TO-BACK TEST

09	----	37
10	----	38
11	----	16 ---- 18
12	----	15 ---- 17
13	----	36
14	----	35
01	----	42
02	----	43
19	----	27
20	----	28
21	----	29
22	----	30
23	----	31
24	----	32
25	----	33
26	----	34

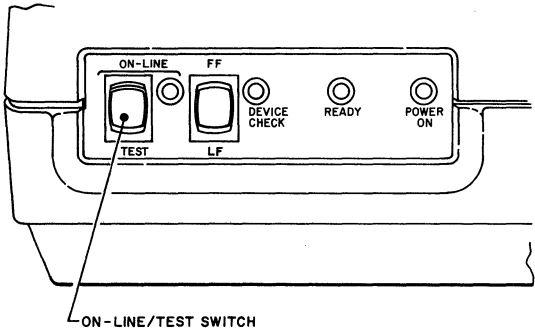
59244

Figure A-1. Type 0797 Printer Diagnostic (Sheet 2 of 2)



59245

Figure A-2. Type 0798 Printer Self-Test



POWER UNIT ON

MOVE ON-LINE/TEST SWITCH TO TEST POSITION AND HOLD
UNTIL SEVERAL LINES HAVE BEEN PRINTED

MOVE ON-LINE/TEST SWITCH TO ON-LINE POSITION

POWER UNIT OFF

TEST COMPLETE

59253

Figure A-3. Type 0425 Character Printer Self-Test

